

RESIDENTIAL SATISFACTION IN LARGE HOUSING ESTATES OF BUDAPEST: IS AGE REALLY JUST A NUMBER?

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With the surge in urban regeneration programs in housing estates in Hungary, there is a need for residents' perceptions of these programs to be understood. This is the first study to be conducted in Hungary and across Central and Eastern Europe to compare residential satisfaction between different age groups within the same city. Thus, this study aimed to investigate whether residential satisfaction differs between the different age groups in the regenerated housing estates in Budapest. The study collected quantitative data from 217 residents living in housing estates that had undergone urban regeneration in Budapest, Hungary. Residential satisfaction was found to differ between age groups within the regenerated housing estates in Budapest. Both the 36–55 and 56+ age group models illustrated that the dwelling unit, housing condition, and housing support satisfaction indices were significant predictors of residential satisfaction. The first age group, 18–35, did not show the dwelling unit satisfaction index to be a predictor, whereas the other two indices were significant in predicting residential satisfaction in Budapest. Further analysis found no correlation between the indices with regard to gender, marital status, or length of residence. Thus, the study adds to the growing corpus of literature on residential satisfaction, especially since most of the extant research has been, up to now, conducted in Western Europe, Africa, and Asia. Furthermore, this study can provide valuable insights for urban planners, urban policymakers, and investors in amending current housing policies and contributing to future housing-led regeneration programs within Hungary.

Key words: Residential satisfaction, Hungary, age differences, housing estates.

INTRODUCTION

Since the 1900s, the world has experienced several housing crises. However, it is only over the past few decades that politicians and other influential stakeholders have taken the concept of a pressing housing crisis seriously. Politicians have often referred to housing as a crisis, an emergency, and a call to action from across the political spectrum. However, contrary to popular belief, the housing crisis is not a straightforward, universally understood and accepted concept, as leading housing stakeholders have created varied narratives. These are what Heslop and Ormerod (2020) referred to as the “dominant narratives” of the housing crisis, whereby the crisis is a basis for specific interventions

seen through the lens of discursive analysis. Still, systemic transformation is often dismissed, and the experiences of the poorest are not reflected in the interpretation of the concept of the housing crisis. In simpler terms, the concept of the housing crisis has been used to create opportunities for new policies, which are often regressive, and specific interventions that do not challenge the hegemonic neoliberal housing model. As evident throughout the history of humankind (Engels, 1887), the housing crisis is an established, secular norm to those facing housing inequality. This is despite the notion that the housing crisis may seem to be temporary and departs from the standard norm of housing affordability and adequacy.

The notions of a housing crisis have been deployed to refer to affordability (increases in rent in the private and public housing sectors) and supply or demand; however, it is vital to understand the housing unit as both a home and a financial investment. In unpacking the concept of “housing crisis,” various socioeconomic implications also emerge,

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such as the continuous increase of intragenerational and intergenerational inequity, whereby the older generation receives higher salaries, which means that they can purchase homes and generate further wealth to acquire additional properties. This means that rent and housing prices for the younger generation are often too high, unless an inheritance or family support enables some young people to kick-start their adulthood. Expectedly, those with a lower income and those who are younger are, de facto, oftentimes automatically excluded from acquiring wealth, thus increasing the burden on the state to meet their basic housing needs (Morton, 2013; Flynn, 2020; Lutz, 2020). Therefore, this inequity is evidenced between the rich and poor and the young and old.

Relatedly, the construction of large-scale housing estates in Europe was predominant during the postwar period to address the housing shortage after World War II. Although these were similar in both construction methods and urban design, with more emphasis on the quantity than on the quality of the flats, moving into these estates was nevertheless a welcomed upgrade for those who had lived in the decayed inner city (Bolt, 2018). Large-scale housing estates were perceived as “modernist urban and social utopias” (Hess *et al.*, 2018, p. 7); however, some two decades later, many of these estates had become associated with prostitution, drug abuse, crime and grime, and other attendant social problems such as mass unemployment and widespread poverty. However, from the onset, it is worth noting that despite the similar goal in constructing housing estates across Europe, these housing systems are often quite diverse in practice, which means that the state-subsidized housing schemes in this continent also show the utmost heterogeneity. For instance, housing estates in Northern and Western Europe were built between the 1950s and 1970s to provide affordable housing to low-income groups (but excluding the poorest of the poor). In Central and Eastern Europe, housing estates were also built over similar periods, but were more prominent in the 1980s and 1990s and targeted at middle- to high-income groups and those deemed deserving of the flats, or plainly “the cream of the crop” (Dekker *et al.*, 2005).

The historical (both political and economic) systems that were in place in these countries meant that many high-rise housing developments were constructed in the outskirts of cities. Of course, newer housing estates were built closer to socialist industries, with the Eastern European estates much larger than those of the West (Dekker *et al.*, 2005). The dramatic change in economic, social, and political systems meant that most of these estates became unpopular and were relegated, de facto, to the bottom of the housing hierarchy. Engendered by the ever-increasing construction of newer housing in the peripheral areas of the cities, more and more poor people were allocated to the now deteriorating housing estates. Mainly in Northern and Western Europe, many housing estates had similar problems, such as varying degrees of building decay, untidiness in public spaces, increased drug and alcohol abuse, reduced social cohesion, and racial tensions (Dekker *et al.*, 2005; Evans, 1998). Despite this, not all housing estates were found to be dysfunctional and socially fragmented, especially when one looks at the estates in Eastern Europe (Dekker *et al.*, 2005).

Nevertheless, the problems associated with obsolescence and degradation, particularly in Hungary, led to the regeneration of urban spaces. Urban regeneration has been one of the approaches used to meet socioeconomic objectives, address urban decay, and improve social networks, primarily by integrating previously segregated vulnerable groups (Zheng *et al.*, 2014). These initiatives have largely been achieved through public-private partnerships and have been widely welcomed in ensuring housing affordability. Therefore, key urban stakeholders must understand the core factors that impact residential satisfaction in these large housing estates, to ensure that future programs can meet the goals, needs, and aspirations of the residents. Particularly, these estates are a melting pot of all age groups; thus, predicting and measuring the residential satisfaction determinants of these different age cohorts will assist in building sustainable communities.

Despite the importance of investigating and measuring residential satisfaction in Hungary, there is little or no published work investigating this area, with a large number of published studies focused instead on Asian, Western, and, recently, on African countries (for instance, see Hadlos, 2021; Weckroth *et al.*, 2022; Bandauko *et al.*, 2022). Although these studies have contributed significantly to the knowledge and understanding of what determines residents’ satisfaction with their residential environment, there is a need for research in other, previously less well-researched countries to test the generalizability of the determinants developed in the better-researched countries. Thus, the present study aims to contribute to the scant literature in Hungary about residential satisfaction, and investigate whether residential satisfaction differs between different age groups in the regenerated housing estates in Budapest. Moreover, this study can provide valuable insights for urban planners, urban policymakers, and investors in amending current housing policies and contributing to future housing-led regeneration programs within Hungary.

Having briefly introduced the topic together with the paper’s main aim and objectives, the rest of the paper is structured as follows. The state of the art concerning residential satisfaction theories and models will be critically discussed in Literature review. The methodology applied in this paper is described in Methodology Section, with the results being reported in Findings. Finally, Discussion provides some recommendations and a few concluding remarks.

LITERATURE REVIEW

Satisfaction is the level of contentment that an individual may have concerning consuming a product or service (Shum and Ghosh, 2022). Various theoretical approaches have been developed to model consumer satisfaction. Earlier approaches to the study of satisfaction include the contrast theory, assimilation theory, and the negative theory, whereas examples of the later approaches include the European Customer Satisfaction Index, value percept theory, and equity theory (Srivastava and Beri, 2016). The expectancy–disconfirmation satisfaction model is a widely applied model used to explain (dis)satisfaction, proposed by Oliver (1977). It is based on the work of Howard and Sheth (1969), which suggests that satisfaction is the degree

of congruence between the individual's aspirations and the perceived realities of experience. In this, consumers form prepurchase expectations of a product for which this expectancy level then becomes a standard upon which the desire for subsequent purchases is formed. The expected level is then compared with the actual performance level after the purchase of the product. If the judgment that results from the actual performance matches the expected level, confirmation occurs. However, negative disconfirmation occurs if the product's performance is worse than initially expected. This model is similar to the actual-aspiration gap, whereby a resident cognitively constructs a reference quality of a housing feature that will act as an ideal standard, depending on their self-assessed needs and aspirations (see also Pagani *et al.*, 2021). If the actual housing feature is perceived to be in close congruity to the reference quality, then residents attain satisfaction. However, if the mental picture of the housing quality that the resident had does not reach the 'threshold deficiency', or rather, the lowest level of satisfaction, residents will either lower their expectations and aspirations, or a degree of dissatisfaction will be engendered (Galster, 1987). This theory is also known as the psychological construct theory.

From the definition of satisfaction, residential satisfaction can then be defined as the level at which a residential environment meets the perceived needs and aspirations of the resident. The residential environment must be understood in its three main dimensions: the residents as the subjective part of the system, the objective attributes of the physical environment, and the satisfaction, which is the regulator of this dynamic relationship (Jiboye, 2012). Three main housing theories have been markedly associated with residential satisfaction models: psychological construct theory, housing needs, and the housing deficit. Most relevant to this research is the housing deficit theory, which was developed by Morris and Winter (1975) to explain how families continuously evaluate the condition of their housing based on their own social and cultural norms. These authors went further, to postulate that a housing deficit would be said to exist if residents were continuously dissatisfied with their physical environment. In this scenario, the housing deficit is not referred to as the lack of housing to accommodate people, but as the perceived poor condition of their housing. Residents assess and then compare the condition of their housing with that of their neighbors via sociocultural benchmarks. If a resident finds that the difference between their benchmark and the material housing condition is too wide, this will result in housing dissatisfaction, which tends toward (1) residential mobility, (2) residential adaptation, or (3) a change in housing composition (Morris and Winter, 1975).

Although scholars and practitioners investigate, measure, and predict residential satisfaction differently, urban planners and architects often focus on the dwelling units, housing conditions, and housing support services. Thus, to meet the aim of the study, these three determinants are the key elements in the present study.

Dwelling unit features

Housing characteristics are crucial determinants, as studies have shown that dwelling unit features such as enough space in the house, bedroom size, location of the bathroom, appearance of the flat, and overall build quality are strongly related to residential satisfaction or dissatisfaction. These physical dwelling characteristics are essential for accurately and definitively evaluating one's housing situation. Negative opinions formed out of these factors may prompt mobility because of the unit not meeting the tenant's needs, whereas positive perceptions of the unit encourage continued residence. For instance, previous studies have shown that residents almost always seek dwellings that have enough space to meet the household's needs (Lu, 1999). Therefore, the person-per-space ratio and residential satisfaction have a negative relationship as the higher the density of the living environment, the more residential satisfaction decreases (Dekker *et al.* 2011). In a study conducted by Buys and Miller (2012) in Australia, overall residential satisfaction was found to be dependent on a certain set of dwelling and neighborhood attributes, such as the location of the dwelling and the dwelling design characteristics (e.g., size, storage space, and sustainability considerations).

Housing conditions features

Based on the effectiveness model developed by Duncan (1971), the quality of housing conditions is categorized into three dimensions: the interior features of the dwelling unit, the exterior of the dwelling unit, and the surrounding area. Residential satisfaction is also derived from satisfaction with a given flat's build quality and its current condition. However, the construction of housing for low- to middle-income groups is very rarely developed to address the actual needs and types of the inhabitants (McCray and Day, 1977). This is mainly due to the quality elements of a building seldom being considered for these families. In this, Aigbavboa (2014) argued that to achieve quality in low-cost housing, there should be a combination of the residents' needs and the overall principles to act as a guide in building adequate housing. However, affordable housing is often built on limited government money, with the poor and (previously) disadvantaged often being the targeted beneficiaries. Because of the limited budget, the cost and design of the construction of this housing are usually compromised. Therefore, a building with suitable quality materials and design is an important indicator that could determine future residential satisfaction in the incoming residents.

Construction of affordable housing is inherently a complex process; therefore, a wide range of technical, functional, and aesthetic issues need to be explored to determine residential satisfaction by evaluating building performance. Jiboye (2012) posited that the prospects of the housing sectors depend on the residents' satisfaction with the dwelling as soon as they move in, and continue throughout the life cycle of the entire building. Hence, planners and developers must understand the needs and expectations of the residents and how these concerns can be met realistically (Lu, 1999). Elsinga and Hoekstra (2005) suggested that the housing quality should not be assessed using just one variable, as

factoring in the subjective and objective dimensions would offer a broader understanding of resident satisfaction or dissatisfaction. Building quality features that contribute to residential satisfaction include the internal and external building quality, window/wall/door/floor/plumbing quality, and the number and physical positioning on the wall of the electrical sockets.

Housing support features

The relationship between government departments and those external stakeholders responsible for the flats and the residents greatly influences overall residential satisfaction. Some important determinants in residential satisfaction are maintenance, rubbish collection, the drainage system, fire protection services, water supply, electricity supply, and rules and regulations within the housing estates. The time the management takes to address complaints raised by tenants also influences residents' satisfaction with their dwelling. For instance, Cho (2020) found that management and service factors positively influenced residential satisfaction in welfare housing facilities exclusively built for low-income, single-mother households in South Korea.

Sociodemographic characteristics

Several sociodemographic characteristics have been studied as mediating factors in predicting residential satisfaction. These oftentimes include age, education level, length of residence, gender, number of people in the household, marital status, income level, and number of dependents. However, the influence they have on residential satisfaction varies across the extant literature; thus, contrasting results are reported. For instance, Lu (1999), Morris and Winter (1975), and Chapman and Lombard (2006) have shown that age has a positive effect, as older residents tend to be more satisfied with their residence compared with their younger counterparts. However, Jun and Jeong (2018) found that the age of the households is negatively related to residential satisfaction. Although these studies provided valuable information regarding the influence of age on the overall satisfaction of a neighborhood, they did not study residential satisfaction in the different age groups. This is vital, as residents in a specific neighborhood within the same age group often have similar experiences and values. In this, older residents are more satisfied as they are more tolerant of their neighborhood shortcomings (Galster, 1987), whereas younger residents are often dissatisfied with their neighborhood, which may be due to this cohort's higher aspirations and needs. Interested in determining how age variance affects housing aspirations in Nigeria, Waziri *et al.* (2014) found that the 50–60 age group was more satisfied compared with other age groups. In another study in Bangladesh, younger residents were found to be more dissatisfied with their residential environment than older residents (Mridha, 2020).

METHODOLOGY

Case study

This cross-sectional study was conducted to investigate the relationship between residential satisfaction and community sense in Budapest housing estates. As the capital of Hungary,

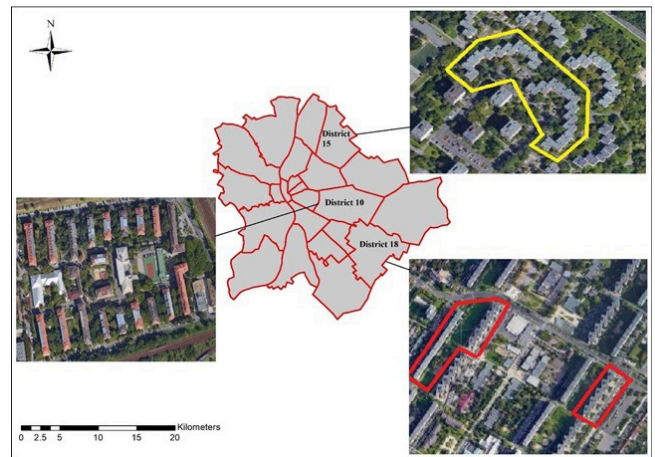


Figure 1. Location of the housing estates covered in the study within Budapest
(Source: Author, 2022)

Budapest has 23 districts, with approximately 1,723,836 inhabitants spanning 525 km². To address the aim of the manuscript, only housing estates that completed urban regeneration programmes with a focus on both physical and social infrastructures were included (Figure 1). These were low-rise housing estates Kis-Pongrác (77 respondents) in district 10 and Újpalota (46 respondents) in the 15th district, while the high-rise estate was Havanna (90 respondents), located in the 18th district, which all have similar, low crime rates compared to inner-city districts. The programmes resulted from extensive public-private partnerships that generally included bottom-up initiatives, funded by the EU as a social regeneration programme, municipal interventions, and the national panel programme. Specifically, all the housing estates have similar socio-environmental variables such as green spaces, community spaces, shopping centres, healthcare services, and other services provided by various stakeholders such as the local municipality. Notably, the manuscript's focus was not to compare the results of the different housing estates, but rather to gain the different residents' opinions and then investigate and compare these results in different housing estates typologies.

Questionnaire design

The data were part of a larger doctoral research project that utilized a multistage sampling technique, i.e., clustering and random sampling techniques to explore whether there was a significant age difference in satisfaction with the residential environment after the implementation of urban regeneration programs in Budapest, Hungary. The data were collected in the Hungarian language, with the help of research assistants, during the summer of 2021. The minimum age to participate in the study was 18 years, with verbal consent required before completion of the questionnaire could be addressed. The questionnaire first introduced the main researcher and the purpose of the research, and then emphasized that residents were under no obligation to participate, they would receive no monetary benefits for participating, and they may decide to terminate completion of the questionnaire and not face any consequences nor be discriminated against. The questionnaire took approximately 15 minutes to complete. The questionnaire

Table 1. Independent variables of the questionnaire

Dwelling unit (DU)	Housing condition (HC)	Housing support (HS)	Sociodemographic
DU1-Number of rooms	HC1-Exterior quality	HS1-Sewer system	Age
DU2-Apartment size	HC2-Interior quality	HS2-Waste disposal	Gender
DU3-Privacy level	HC3-Sanitary quality	HS3-Fire protection	Marital status
DU4-Natural light	HC4-Plumbing quality	HS4-Water supply	Length of residence
DU5-Ventilation quality	HC5-Interior painting	HS5-Power supply	
DU6-Floor level quality	HC6-Number of electrical sockets	HS6-Gas supply	
DU7-Physical appearance of the apartment	HC7-Location of electrical sockets	HS7-Joint representation/ housekeeping	
DU8-Flat's natural temperature in summer	HC8-Quality of doors	HS8-Mobile/internet service coverage	
DU9-Flat's natural temperature in winter	HC9-Quality of windows		
	HC10-Quality of walls		
	HC11-Quality of floor coverings		
	HC12-Heating system		

sought to measure three main components (determinants) of residential satisfaction: (1) residents' satisfaction with their dwelling unit, (2) the condition of their housing, and (3) housing support features. Each component of residential satisfaction is represented by a larger number of variables (Table 1). Respondents indicated how satisfied they were with the researched variables on a scale from 1 (least satisfaction, i.e. dissatisfaction) to 5 (highest satisfaction). Sociodemographic variables were also collected (Table 1).

Data analysis

Several statistical analyses were conducted to achieve the goal of the present research. Before any analysis could begin, data entry was performed, which consisted of moving raw data from paper format into Microsoft Excel. Thereafter, the spreadsheets were imported into the Statistical Package for Social Sciences (SPSS, version 27) for statistical analyses. Descriptive statistics were calculated, and then, to measure the scores of residential satisfaction in Budapest, three indices were used.

First, the satisfaction index (SI) calculates the satisfaction index of each specific component that was developed by Onibokun (1974). It is understood that the total score of all the variables within a specific component indicates if respondents are satisfied or dissatisfied with that component. Thus, this index builds on the habitability indices that were calculated in the previous step. Equation 1 is provided below:

$$SI_x = \frac{\sum_{i=1}^N y_i}{\sum_{i=1}^N Y_i} \times 100 \quad \text{Equation 1}$$

where SI is the index of relative satisfaction of a tenant with a specific given component (x); N is the number of variables selected for scaling under x; y_i is the actual score by a respondent on the ith variable; and Y_i is the maximum score that variable i could have on the scale used (Onibokun, 1974, p. 192).

Second, the residential satisfaction index (RSI) calculates a respondent's residential satisfaction in all the components in the questionnaire (Onibokun, 1974). This is mathematically expressed in Equation 2:

$$RSI_m = \frac{\sum_{i=1}^{N_1} d_i + \sum_{i=1}^{N_2} hs_i + \sum_{i=1}^{N_3} hc_i}{\sum_{i=1}^{N_1} D_i + \sum_{i=1}^{N_2} HS_i + \sum_{i=1}^{N_3} HC_i} \times 100 \quad \text{Equation 2}$$

where RSI_m is the satisfaction index of a respondent with the residential satisfaction model. N1, N2, and N3 are the numbers of variables selected for scaling under the dwelling unit, housing support services, and housing condition components, respectively. d_i, hs_i, and hc_i represent the actual score of a respondent on the ith variable in the component. D_i, HS_i, and HC_i are the maximum score of the variable i in terms of the dwelling, housing support, and housing condition components, respectively.

Lastly, the habitability index (HI) is used to calculate the exact variables of the components to find out the degree to which they contributed to the satisfaction or dissatisfaction of the resident. This index was introduced by Ogu (2002), and it calculates the indices separately rather than in combination. In other words, based on the scores (1-5) that respondents assigned to each variable, these are totaled and then divided by the sum of the maximum possible score for that specific variable. This is then multiplied by 100. Equation 3 is illustrated below:

$$HI_x = \frac{\sum_{i=1}^N a_{yx}}{\sum_{i=1}^N A_{yx}} \times 100 \quad \text{Equation 3}$$

where HI_x represents the index of habitability of variable x, N is the number of respondents (217), and a_{yx} is the actual score on the 5-point scale by the yth respondent on the xth variable. "A" represents the maximum possible score that respondent "y" could give to variable x on a 5-point scale (Ogu, 2002, p. 44).

The third stage included the running of normality tests, whereas the fourth and final stages included the correlation analysis and the regression modeling.

FINDINGS

Descriptive statistics

Table 2 presents the sociodemographic information of the respondents. Of the total 217 respondents, 126 (58.1%) identified as women, and 73 (33.6%) had a university

Table 2. Descriptive statistics of respondents

Variables	Total N = 217 n (%)	18-35 N = 50 n (%)	36-55 N = 94 n (%)	56+ N = 73 n (%)
<i>Gender</i>				
Female	126 (58.1)	25 (50)	48 (51.1)	53 (72.6)
Male	90 (41.5)	24 (48)	46 (48.9)	20 (27.4)
Other	1 (0.5)	1 (2)	0	0
<i>Marital status</i>				
Single	57 (26.3)	22 (44)	26 (27.7)	9 (12.3)
Married	85 (39.2)	19 (38)	39 (41.5)	27 (37)
Cohabiting	27 (12.4)	9 (18)	15 (16)	3 (4.1)
Widowed	29 (13.4)	0	3 (3.2)	26 (35.6)
Divorced /living separately	19 (8.8)	0	11 (11.7)	8 (11)
<i>Length of residence</i>				
<5 years	76 (36.4)	36 (72)	33 (35.1)	10 (13.7)
6-10 years	35 (16.1)	9 (18)	23 (24.5)	3 (4.1)
11-15 years	26 (12)	2 (4)	17 (18.1)	7 (9.6)
16-20 years	15 (6.9)	1 (2)	6 (6.4)	8 (11)
>20 years	62 (28.6)	(4)	15 (16)	45 (61.6)

qualification. The majority (39.2%) were also married, as compared with the 8.8% who were either living separately or divorced.

Internal consistency test

The internal consistency of the different components of the questionnaire was measured using Cronbach’s alpha. This tool measures the degree to which an instrument (i.e., a questionnaire) produces the same results if the exact measurement is repeated. It is the most widely used method to measure the internal consistency of an instrument with scores above 0.70 and is often said to have high reliability. The scores were as follows: 0.787 for the dwelling unit, 0.888 for housing condition and 0.786 for housing support services.

Satisfaction with housing estates

The distribution quartiles of the satisfaction indices illustrate that all age groups were moderately satisfied with all the study’s components, except for the age group 56+ in which 53.4% and 46.6% of the residents were highly satisfied with the dwelling unit satisfaction index (DUSI) and housing conditions satisfaction index (HCSI), respectively (Figures 2-5). Similarly, a few people were overly dissatisfied with the HCSI as compared with none for DUSI, housing support services index (HSSI), and residential satisfaction index (RSI).

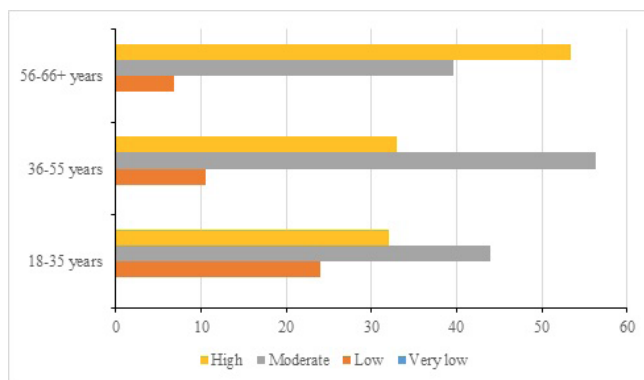


Figure 2. Dwelling unit satisfaction index (Source: Author, 2022)

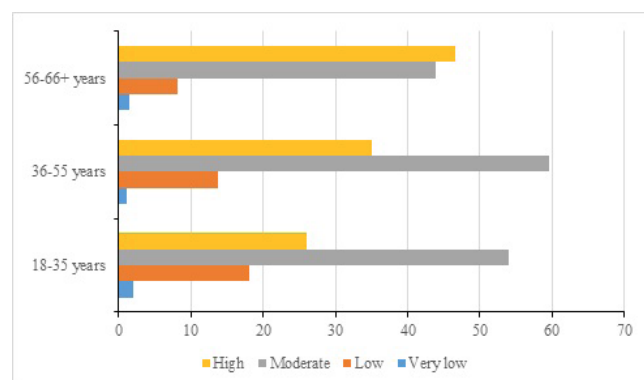


Figure 3. Housing conditions satisfaction index (Source: Author, 2022)

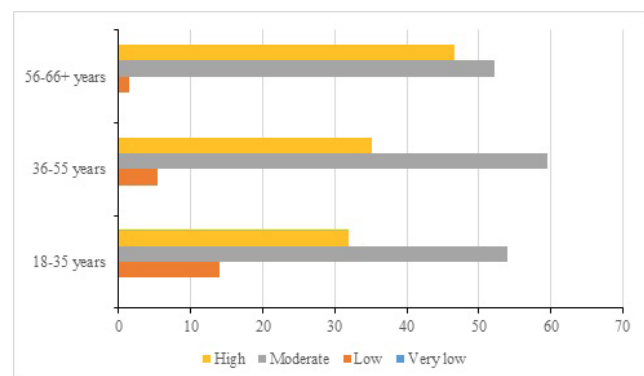


Figure 4. Housing support satisfaction index (Source: Author, 2022)

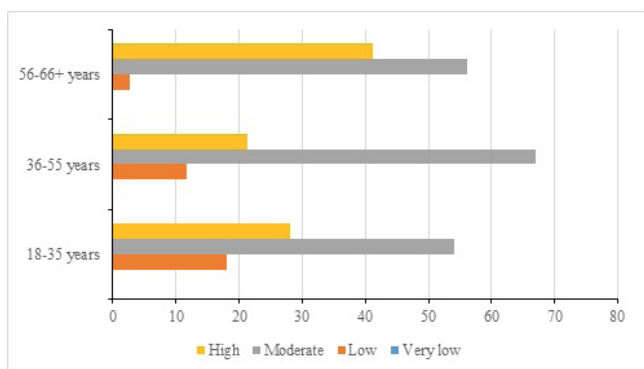


Figure 5. Overall residential satisfaction index (Source: Author, 2022)

Regarding the HI, the variables in all the components were ranked from largest to smallest (Table 3).

Table 3. HI rank ordering of all the variables

18-35		36-55		56+	
Variable	HI	Variable	HI	Variable	HI
D4	78	D4	78.5	D4	80
D3	77.2	HS5	77	D3	79.5
HS5	76.4	D5	76.4	D2	79.2
D7	75.2	HS6	76.2	HS8	78.9
D5	74.8	D7	76	D1	78.4
HC6	74.8	HC9	74.9	D5	77.8
HS6	74.8	HS8	74.3	HC1	77.8
HC3	73.2	HS4	73.8	HS5	77.5
HC9	72.8	HC1	73.8	D7	77.3
HS4	72.8	D6	73.8	D6	77.3
HS3	72.4	D3	73.6	HC8	77.3
D1	72	D1	73.4	HS2	77.3
HS8	72	D2	73	HC3	77
HC7	71.2	HC4	72.1	HC12	76.4
HC5	70.8	HS3	71.3	HS6	76.2
HC8	70.8	HS1	71.3	HC9	76.2
HC4	69.6	HS7	71.3	HS4	76.2
HS1	69.6	HC6	71.1	HC5	76.2
D2	69.2	HC3	70.9	D9	76.2

The highest HI score across the age groups was D4 (natural light), with D3 (privacy level) being the second highest in the 18-35 (77.2%) and the 56+ (79.5%) cohorts. Similarly, all age groups were the least satisfied with the D8 (flat's natural temperature in summer). On the one hand, regarding the housing condition variables, the 56+ residents were highly satisfied with HC1 (exterior quality) (77.8%) as compared with the 36-55 (73.8%) and 18-35 (69.2%) groups. On the other hand, the 36-55 age group were highly satisfied with HS5 (power supply) (77%), followed by the 18-35 (76.4%) group and the 56+ (77.5%) group when ranked. No variable scored more than 80% or lower than 60%, thus supporting the satisfaction index, in that all groups were moderately satisfied with their dwelling unit, housing conditions, and housing support services.

Preanalysis tests

Before the next analysis steps could be taken, normality tests were conducted to determine if the dataset was normally

distributed or not. This valuable information would then determine whether parametric or nonparametric tests for comparing two or more groups were required. Both the Kolmogorov-Smirnov and Shapiro-Wilk normality tests were computed in SPSS, although the results of the Shapiro-Wilk test were mostly deployed because of its power intensity (Razali and Wah, 2011). Table 4 illustrates that the p-value was less than 0.05, which meant that the data were not normally distributed. Specifically, the "18-35," "36-55," and "56+" age groups were the independent variables, whereas the RSI for the total dataset was the dependent variable.

As a result of the above results, nonparametric tests were conducted based on the assumption that the dataset was "distribution-free." The Kruskal-Wallis test was conducted, as it is used to check if there is a significant difference between three or more groups within an independent variable (MacFarland and Yates, 2016). Results suggest that there is a statistically significant difference ($p < 0.002$, $df = 2$, test statistic = 12.320) between the mean ranks of at least one group of the age variables. Dunn's pairwise comparisons of the category of age suggest that sample 3 (56+) has a higher median than samples 1 (18-35) and 2 (36-55) (Table 5).

Correlation analysis

Keeping in line with nonparametric tests, the Spearman rank correlation coefficient was used because of its ability to measure the statistical relationship between two variables. In this, it measured the relationship between RSI and the sociodemographic variables, in combination with the already calculated SI. The HCSI had the highest correlation with the RSI, followed by the DUSI and the HSSI, whereas age had the least positive correlation with residential satisfaction. The results of the intercorrelation between the components show that there is a relatively strong correlation. The correlation of the HSSI ranked the lowest positive with age, followed by the HCSI, with the DUSI reporting the highest correlation. There was no correlation found between the listed variables and gender, marital status, or length of residence (Table 6).

Regression analysis

Stepwise multiple linear regression (MLR) was used to estimate the simultaneous effects of the satisfaction indices' components (DUSI, HCSI, and HSCI) to explain the variance within residential satisfaction. Three models, for the age groups, were executed. The higher the beta weight, the more the variable contributes to predicting residential satisfaction. Similar results can be seen in Table 7, whereby the HCSI in each of the models was the most significant contributor. In both the 36-55 and 56+ age models, DUSI

Table 4. Normality tests for dataset

Residential Satisfaction Index	Age	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df.	Significance	Statistic	df.	Significance
	18-35	0.142	50	0.014	0.935	50	0.009
	36-55	0.107	94	0.010	0.974	94	0.056
	56+	0.136	73	0.002	0.888	73	0.000

a. Lilliefors Significance Correction

Table 5. Dunn’s pairwise comparisons test of three categories of age

Sample 1- Sample 2	Test statistic	Std. error	Std. test statistic	Significance	Adjusted significance
1-2	78	D4	78.5	D4	80
1-3	77.2	HS5	77	D3	79.5
2-3	76.4	D5	76.4	D2	79.2

Table 6. Spearman rank correlation coefficients between RSI, SI, and socioeconomic variables

	DUSI	HCSI	HSSI	Age	Gender	Marital status	Length of residence
DUSI		0.634**	0.470**	0.207**			
HCSI			0.527**	0.179**			
HSSI				0.147*			
RSI	0.825**	0.912**	0.710**	0.197**			

* Correlation is significant at the 0.01 level (two-tailed).
 ** Correlation is significant at the 0.05 level (two-tailed).

was the second-highest contributing predictor, whereas in the 18–35 age group, this was not significant at all. However, the HCSI in this model was the highest when compared with the other models. The R² of all three models indicates that 100% of the variance in residential satisfaction was explained by the models.

Table 7. Multiple linear regression per age group.

	18–35		36–55		56+	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
DUSI			0.325	0.000	0.416	0.000
HCSI	0.706	0.000	0.539	0.000	0.617	0.000
HSSI	0.419	0.000	0.293	0.000	0.252	0.000
	R = 1.0 R ² = 1.0 Std. error = 0.000 df = 46		R = 1.0 R ² = 1.0 Std. error = 0.000 df = 90		R = 1.0 R ² = 1.0 Std. error = 0.000 df = 69	

DISCUSSION

This study sought to investigate whether residential satisfaction differs between different age groups within regenerated housing estates in Budapest. The findings suggest that age is not just a number in housing estates, as there is a significant difference in the residential satisfaction experienced by residents belonging to different age groups.

Similar to the present findings, older residents have a much higher residential satisfaction when compared with the younger occupants.

Dwelling unit features

Findings from the satisfaction indices suggest that the older residents (56+ years) were highly satisfied with their dwelling unit, whereas the other residents were largely satisfied. Particularly, the HI scores show that older residents were satisfied with the natural light, the level of privacy, and the size of the apartment. This supports Rojo Perez *et al.*'s (2001) findings, in which older adult residents of Madrid were found to be highly satisfied with dwelling

variables such as the size and natural light of the apartment. However, it is worth noting that overcrowding may not be an inconvenience for older adults as they mostly live alone. According to Eurostat data (2017), compared with the 32.1% EU average, approximately 38.8% of those over the age of 65 years in Hungary live alone. From this, it is unsurprising to find that older adults are more satisfied than those aged between 18 and 35 years. Younger residents are

less satisfied with their dwelling units for various reasons. First, approximately 46.4% of this age bracket in Hungary currently live with their parents by self-defined current economic status, with the sharing of space possibly causing feelings of overcrowding and limited privacy, thus increasing dissatisfaction (Eurostat, 2022). It should be mentioned that in the present study, this age group was satisfied with the privacy level in the apartment, thus contradicting previous studies in Serbia (Milić and Zhou, 2018), the USA, and Turkey (Kaya and Weber, 2003). Second, although older residents may be more satisfied with the dwelling unit because of their association of the place with fond memories (Neisser, 1988), younger residents have fewer fond memories of their place of residence, and are thus unable to overlook certain variables in their apartment. At the same time, the present findings show that the middle age group reported a higher level of satisfaction than younger people. There may be two reasons for this: first, those between 36 and 55 years old are often financially stable and can afford to improve the quality of their housing if they want to, or simply move to another location, and second, as argued by Golant (1984), the increasingly high satisfaction of the middle and the older age groups may indicate that housing aspirations and preferences may indeed alter with age. Finally, a look at the MLR results suggests that the satisfaction index of the dwelling unit was not a predictor in the 18–35 group, whereas it was a major positive influence in the 56+ followed by the 36–55 age groups.

Housing condition features

In all the age groups, the housing condition satisfaction index was a significant predictor of residential satisfaction. In the youngest age group, this index was the most significant when compared with the middle and older age groups. However, similarly to the DUSI, this group had the relatively lowest satisfaction with the condition of their housing. Interestingly, the 36–55 age group scored the lowest with regard to the quality of the walls, doors, number of electrical sockets, and sanitary conditions. This may be because this group is predominantly working class, and thus, they have numerous mental and physical workloads, and they do not have the patience or the frame of mind to adopt coping mechanisms to increase their satisfaction with these

qualities. This factor is most likely to induce the middle age group to move to better-quality accommodation, especially those residents with children (Gibler and Tyvima, 2015).

Housing support services

Findings from the housing support services, or management features, in the MLR showed that it was the most significant predictor in the first age group, followed by the middle age group and then the older adults. Satisfaction index scores suggest that those in the 18–35 age group are more dissatisfied with housing support features compared with their counterparts. For instance, this group achieved a lower score for satisfaction with the water supply. Similar results have been confirmed in Latvia when Krūmiņš *et al.* (2018) investigated how both mobility and static factors affect young individuals' assessment of residential satisfaction. They found that although the quality of the water infrastructure was a predictor in both the 18–34 and 35+ age groups, it was higher with the latter. Regarding their satisfaction with the joint representation of the housing blocks, the 18–34 group was the least satisfied. There may be two main reasons for this. First, older people are often less negative about their living conditions, which may be as a result of them “making do with what they have” perhaps because of the limited opportunities, intentional or otherwise, to move elsewhere. In this sense, the older a resident gets, the higher the chances that environmental stress would not disconcert them much, due to perhaps having experienced much more difficult issues in the past (Granbom *et al.*, 2021). Second, during the data collection, the researcher discovered that younger residents were more vocal about their issues, which leads to the assumption that they knew the responsibilities of the joint representation and often raised their grievances with them.

CONCLUSION

In the current study, residential satisfaction was found to differ between different age groups within regenerated housing estates in Budapest. Both the 36–55 and 56+ age group models illustrated that the dwelling unit, housing condition, and housing support satisfaction indices were significant predictors of residential satisfaction. The first age group, 18–35, did not find the dwelling unit satisfaction index to be a predictor, whereas the other two indices were significant in predicting residential satisfaction. Thus, age is not just a number when it comes to residential satisfaction, as significant differences do exist. This study is the first empirical evidence of identified age differences in residents' satisfaction with their residential environment in Hungary. It also contributed significantly to the growing literature on the topic using a Hungarian sample, thus improving the extant knowledge base from Central and Eastern Europe. Furthermore, with the surge in urban regeneration programs in Hungarian housing estates, it is hoped that these research findings are of interest to key stakeholders, in order to address residential satisfaction among the residents. Despite these contributions, some study limitations exist. First, no causality relationship could be inferred from the cross-sectional study design. Second, although the study sample has shed light on the satisfaction of neighborhoods, the sample size may limit the generalization of the study


results. Third, the data were only collected in Budapest, with future research being advised to compare the current findings with those of other cities in Hungary such as Pécs, Debrecen, and Szeged.

To conclude, urban regeneration programs can transform urban neighborhoods, revitalize public spaces, and improve the residents' quality of life. To have a greater, long-lasting impact, a needs assessment or, rather, a Social Impact Assessment should be conducted during the planning phases of the programs to identify, address, and monitor the positive and negative impacts of the programs on the communities.

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