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CONCEPTUAL MODEL FOR MEASURING AND PREDICTING RESIDENTIAL SATISFACTION IN HOUSING-LED URBAN REGENERATION IN POST-SOCIALIST CITIES

Abstract: Residential satisfaction is a multi-dimensional concept that is the degree to which residents feel their place of residence helps them achieve their desired goal. The research aims to develop a holistic model that can predict and measure residential satisfaction in regenerated housing in post-socialist cities. The holistic model for residential satisfaction postulates objective and subjective measurements after a brief review of theories and research gaps within the literature. This paper reports on the conceptualization of the model, with findings to validate this model being reported later. It is anticipated that the results of this model will assist key stakeholders to consider variables that are important in ensuring residential satisfaction within post-socialist cities.

Key words: residential satisfaction, post-socialist cities, urban regeneration, housing

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Introduction

The main objective of the state-socialist welfare system designed to maintain a one-party power structure, and egalitarian policies and welfare were the means for the ruling party to have total central ownership of land resources. After 1989, there was a radical shift from centrally-planned to a free market, a single-party system to a multi-party, and the abolishment of egalitarian policies. The housing market was not spared as over 90% of public housing was privatized (Csizmady et al., 2017). Together with the surge of unemployment, the majority of these estates became associated with 'crime and grime', which led to the regeneration processes from the 1990s. Of course, this was largely dependent on the country in which these estates were in, the technology used to build them and which period they were built. With over three decades since the collapse of the state-socialist regime, post-socialist cities are still carrying the badge of the poor housing system, wealth inequality, urban decay and social segregation. Deindustrialization and urbanization have attracted foreign investment such as the EU to transform urban spaces, particularly large-scale housing estate.

Affordable housing plays a vital role in promoting reliable economic and social health among residents. It is important to note that the affordability of a house does not only refer to being able to afford the rent and maintenance but also includes the affordability (or lack) of transport and services. Affordable housing is important for a just housing system; therefore, it is crucial to understand that it also has geographical implications with housing markets affected by several factors such as socio-political factors. Thus, due to the unique and different ways in which socialist countries experienced socialism, it is vital that the historical, political and social transformations of these countries, in relation to residential satisfaction, are understood. For instance, the democratic political system in Hungary laid the foundation of the economic transition, characterised by privatisation, foreign trade, bank reforms, and financial aid, amongst others. One of the main aims of the dismantling of the capitalist system by the socialist regime was to eradicate private ownership of property with ownership only permitted to peasant households landownership as it breeds inequality (Kovács, 2020; Nagy, 2005). As such, housing became an essential element of the socialist era. However, the collapse of socialism resulted in the decentralisation of power to local governments (including public housing stock) and thereafter the denationalisation of the public stock where renters could purchase the flats below the market prices. This was done due to local governments being unable to keep up with the maintenance of the properties. This resulted in the drastic low rate of publicly owned housing stock in most post-socialist countries, such as Hungary. In the initial years of privatisation, the housing sector had not developed into real housing markets (Tosics, 2012). This history together with multiple other external factors, meant that the deteriorating of the housing in post-socialist cities increased. Therefore, residential satisfaction in these cities requires a nuanced lens to understand as it is these housing estates that are largely being rejuvenated.

As more post-socialist cities are partaking in regeneration housing projects, policymakers and experts must understand the factors that influence residential satisfaction so as to create sustainable communities. As Lu (1999) postulates, residential satisfaction is a complex construct that is influenced by various factors. It refers to residents experiencing a feeling of contentment whereby the house that they are inhabiting meets their expectations through achieving their needs and wants. Apart from residential satisfaction being a key component in understanding an individual's quality of life, it also determines how individuals perceive and then respond to their environment. To adequately operationalize

residential satisfaction, it is crucial to understand the affective, cognitive and behavioural dimensional processes that occur when the resident interacts with their residential environment. There exists an array of literature on the determinants, measurements and conceptual models of residential satisfaction (see Emami & Sadeghlou, 2020); hence it is beyond the scope of this research to review this work. Studies have utilized several tools to measure overall residential satisfaction and the different variables, with the most common method being closed-ended questionnaires. These questionnaires often ask residents to answer questions of 'how satisfied are you with...', 'how would you rate the....' or 'do you dis/agree with the following statements' concerning a series of items. Based on the needs of the research, researchers have often developed their questionnaire based on literature; however, the quality of these questionnaires have been heavily scrutinized (Smrke et al., 2018). Criticism of these questionnaires have centred around issues: (1) lack of validated questionnaires, (2) scant information of psychometric variables, (3) lack of questionnaires that have integrated the interrelated three levels of the residential environment (dwelling, neighbourhood and social), (4) easily adoption to similar context. To answer the call from Smrke et al. (2018), this paper presents a conceptual framework that has been adopted and altered from existing questionnaires of residential satisfaction. Due to no known published questionnaire suitable for studying residential satisfaction in ex-post housing-led urban regeneration projects in post-socialist cities, this research attempts to fill this gap.

Research Gaps

There are predominantly two types of measurements widely used: objective and subjective measures (Wiedemann & Anderson, 1985). Objective measure refers to the actual, physical measurements, while subjective measurement refers to the emotions, perception, and feelings towards the residential environment. Based on the empirical studies on residential satisfaction, there are various factors that influence residential satisfaction in different contexts (Table 1). Therefore, no consensus or universal factors exist which explain residents' satisfaction with their residential environment. As such, researchers often decide on the determinants of residential satisfaction based on the housing tenure, countries, and overall aim of their study. This is due to this concept being grounded on perception. As Ukoha and Beamish (1997: 446) put it succinctly, "residents' satisfaction is not absolute, and housing conditions are not static; thus, the housing condition or residents' satisfaction with these conditions at any given time can be measured only in relative terms". Moreover, developing new questionnaires to fit specific settings is not discouraged; however, experts in the field have encouraged authors to adapt existing models so to contribute towards the knowledge of psychometric data.

Methodology of Approach

The vulnerability of urban elements to natural hazards related to landslides in Djebahia municipality was analysed using the analytic hierarchy process. The objective of this analysis is to prepare a map of the exposure of the studied area to landslides using the geographic information system (GIS). To achieve this goal, the principles of hierarchy analysis are applied in order to obtain very important results, including the production of a comprehensive map showing the extent of exposure of urban components (housing, equipment, road network) and the degree of their exposure to this danger. The analysis included several analytical steps using data from remote sensing and statistics for the study area. The

obtained map represents three levels of vulnerability: high, medium, and low. As for the elements most affected by the danger of landslides, they are individual and collective housing, followed by public equipment and roads.

Table 1. Literature review of residential satisfaction determinants

References	Socio-demographic	Dwelling unit	Neighbourhood features	Social environment	Housing condition	Housing support services	Residential participation	Environmental satisfaction	Behavioural characteristics	Need and expectations
Morris and Winter (1975)	✓	✓		✓					✓	
Marans and Rodger (1975)	✓	✓	✓	✓						
Hourihan (1983)	✓		✓							
Mohit <i>et al.</i> (2010)	✓	✓	✓	✓		✓				
Aigbavboa (2014)	✓	✓	✓		✓	✓	✓			✓
Hur <i>et al.</i> (2010)	✓							✓		
Sahraoui <i>et al.</i> (2016)	✓		✓					✓		
Etminani-Ghasrodashti <i>et al.</i> (2017)	✓	✓	✓	✓		✓	✓			

Source: author's conclusion based on literature

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 residential, the physical environment, and the satisfaction, which is the regulator of this dynamic relationship. As such, this sub-section examines and then justifies the addition of three variables from existing models.

Social Milieu

The social aspects of a residential environment primarily refer to the social networks that are formed in the semi-private communal spaces of the physical building and the overall neighbourhood. When it comes to deciding on residence choice, residents not only consider the physical properties of a dwelling but also include the social aspects. Although previous literature measures social environment, it is often underestimated and encompassed under neighbourhood variables; exemptions do exist, such as Etminani-Ghasrodashti *et al.* (2017). This is incorrect as these variables reinforce spatial identity through the quality relationship with a social environment. There are several dimensions of social sustainability, such as quality of life (Aragonés *et al.*, 2017), social interaction (Lelévrier, 2013), job opportunities (Barreira *et al.*, 2019), that have been used to measure residential (dis)satisfaction. Noteworthy, variables within the social milieu need not be limited to the above-mentioned but may include sociopetal spaces (Karuppanan & Sivam 2011), place attachment (Hesari, 2019).

Residential Participation

With the move from blueprint to more collaborative urban planning, governments have turned towards incorporating residents into urban regeneration projects. Relatedly, previous studies on resident participation and residential satisfaction have found that the more

residents are included in decision-making processes within their residential environment, the more satisfied they will be living there (Ammar et al., 2013; Aigbavboa & Thwala, 2013; Fakere et al., 2020). Drawing from Wilcox’s Ladder of Participation (1999), four phases of public participation, resident participation in urban regeneration projects need to be more than a ‘superficial consultation’ where residents are consulted on the implementation of evaluative phases of the projects, which produces long-term issues within the community. Furthermore, the lack of post-occupancy studies on urban regeneration projects points to the lack of evaluative consultations between the residents and other stakeholders. Through such outcomes, housing issues and solutions could be discussed so to inform policy-makers and prevent similar issues in other projects. Noteworthy, different projects call for varying levels of participation to meet the needs of the involved stakeholders.

Environmental satisfaction

Researchers have been remiss in investigating the physical, environmental context in relation to residential satisfaction. Several evolutionary theories, such as the prospect-refuge theory that explore the human-environment relationship have argued that humans are an integral part of the holistic landscape ecology (Sahraoui et al., 2016). In other words, human behaviour is partially conditioned by how s/he perceives her/his environment (An-trop, 2000). If one lives in a disorderly environment, one will put a low value on the environment, prompting further degradation. The environmental context focuses on greenery and landscape preferences as residents often seek the benefits of the natural environment (Hayward & Weitzer, 1984). Furthermore, residents may also be asked about their environmental awareness practices (or lack of). Recent studies that have successfully linked environmental satisfaction and residential satisfaction include Lee et al. (2008) and Lofti et al. (2019). Some characteristics of both environmental sustainability and neighbourhood features may overlap, such as noise level and public safety.

Measuring residential satisfaction

The measuring techniques employed to measure residential satisfaction also varies, often depending on the researcher’s objectives and determinants used. The decision of choosing a method should not be randomly made as each technique has its advantages and disadvantages (Table 2). Noteworthy it is the type of regression tools used and the reliability, validity, and generalisability measurements that are important in evaluating the quality of the measurements and ensuring a similar study can be efficiently conducted elsewhere.

Table 2. Commonly used techniques for external validity

	Advantages	Disadvantages	Studies
Logistic regression	) Predicts dependent variable’s value	) Limited to one dependent variable	Lu (1999)
Structural Equation Modelling	) Can validate causal model) Allows simultaneous analysis	) Minimize sample size is 200	Riazi and Emami (2018) Aigbavboa (2014)
Multiple regression	) Evaluates relationship between multiple constructs	) Only handles the observed variables) Cannot simultaneously evaluate model constructs	Mohit et al. (2010) Krūmiņš et al. (2018)
Correlation coefficient	) Simple to understand	) Excludes categorical data	Davoodi and Dağlı (2019)

Source: Author

Holistic residential satisfaction model

The holistic residential satisfaction model is a combination of components that have been highlighted in empirical studies and conceptualized models such as Francescato et al. (1989) and Mohit et al. (2010). Most importantly, it draws on the model of Marans and Rodger (1975), who argued that the overall residents satisfaction with their residential environment depends on their perception of the several neighbourhood characteristics and their assessment of these characteristics. Furthermore, they postulate three aspects that influence a resident's satisfaction: the resident's behaviour, their perception of the several objective determinants, and their assessments of these determinants. Hence, residential satisfaction is a subjective response to objective attributes, whereby subjective and objective features are combined to measure residents satisfaction with their residential environment. Therefore, in this model, satisfaction is perceived as a criterion for evaluating the overall housing experience and treated as a dependent variable (Figure 1).

It is important to emphasize that although several conceptual models have been developed on residential satisfaction, these models have often been disjointed, partly due to the researcher's objective. The partiality towards specific determinants, as opposed to the negligence of others, point towards the lack of a multifaceted framework enshrined within the sustainability framework to make cities more liveable and sustainable. Moreover, previous models of residential satisfaction have been superseded by newer models that aimed to meet the gaps of earlier models. This is because models follow a three-phase process: (1) evaluation, (2) disconfirmation and (3) improvement. As such, by identifying the lack of a largely employed model to evaluate residential satisfaction in ex-post urban regeneration projects, the paper introduced a model that post-socialist cities can utilize. Staying true to the three-phase process, it is only through the holistic model in various contexts that an accurate comparison of the different results can be conducted.



Fig. 1. Holistic residential satisfaction conceptual model (Source: Author)

Conclusion

Despite the broad international literature within this interdisciplinary field, there still exist several gaps within residential satisfaction. After conducting an extensive literature review on existing literature, four components were chosen from the literature: dwelling unit, neighbourhood, housing conditions, housing support services. The following components were the gaps discovered in the published literature: social milieu, resident participation and environmental satisfaction. This model also focuses on all three levels of the residential

environment (dwelling, neighbourhood and social) due to their interrelatedness and interconnectedness. Therefore, a multifaceted framework enshrined within the sustainability framework to make post-socialist cities more liveable and sustainable is required. In this, it is important to understand that if the housing determinants are inconsistent with the residents' needs and aspirations, it will likely result in residential dissatisfaction. Thus, the adoption of the holistic residential satisfaction model is encouraged for researchers working in post-occupancy of urban regeneration projects in post-socialist cities. Moreover, due to the studies on residential satisfaction providing valuable information of the behavioural, affective and cognitive characteristics of residents, in respect to the residential environment features, studies that consider all these determinants can inform policy-makers, architects, planners and developers of the most important features that indicate a positive satisfaction with the residents and thereafter improve key housing policies.

Conflicts of Interest: The authors declare no conflict of interest.

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References

- Aigbavboa, C.O. (2014). *An integrated beneficiary centred satisfaction model for publicly funded housing schemes in South Africa* [Doctoral Dissertation, University of Johannesburg].
- Aigbavboa, C., & Thwala, W. (2013). The role of beneficiaries' participation in South Africa low-income housing occupants' satisfaction. In Smith, S. D. & D. D. Ahiaga-Dagbui (Eds.). *Procs 29th Annual ARCOM Conference, Association of Researchers in Construction Management* (pp. 1331-1340).
- Ammar, S., Ali, K. H., & Yusof, N. A. (2013). The effect of participation in design and implementation works on user' satisfaction in multi-storey housing projects in Gaza, Palestine. *World Applied Sciences Journal*, 22(8), 1050-1058.
- Antrop, M. (2000). Background concepts for integrated landscape analysis. *Agriculture, Ecosystems and Environment*, 77(1-2), 17-28. DOI:10.1016/S0167-8809(99)00089-4
- Aragónés, J. I., Amérigo, M., & Pérez-López, R. (2017). Residential satisfaction and quality of life. In Fleury-Bahi, G., Pol, E., & Navarro, O. (Eds.). *Handbook of environmental psychology and quality of life research* (pp. 311-328). Springer.
- Barreira, A. P., Nunes, L. C., Guimarães, M. H., & Panagopoulos, T. (2019). Satisfied but thinking about leaving: The reasons behind residential satisfaction and residential attractiveness in shrinking Portuguese cities. *International Journal of Urban Sciences*, 23(1), 67-87.
- Csizmady, A., Hegedüs, J., & Nagy, G. (2017). The effect of GFC on tenure choice in a post-socialist country—the case of Hungary. *International Journal of Housing Policy*, 17(2), 249-275.

- Davoodi, T., & Dağlı, U. U. (2019). Exploring the determinants of residential satisfaction in historic urban quarters: Towards sustainability of the Walled City Famagusta, North Cyprus. *Sustainability*, 11(22), Article 6261. DOI:10.3390/su11226261
- Etminani-Ghasrodashti, R., Majedi, H., & Paydar, M. (2017). Assessment of residential satisfaction in Mehr housing scheme: A case study of Sadra New Town, Iran. *Housing, Theory and Society*, 34(3), 323-342.
- Fakere, A.A., Folorunso, C.O., Arayela, O., & Omole, F. K. (2020). Strategic framework for resident's participation in housing provision in Akure, Southwest Nigeria. *Zeitschrift für Immobilienökonomie*, 6, 137-160.
- Francescato, G., Weidemann, S., & Anderson, J. R. (1989). *Evaluating the built environment from the users' point of view: an attitudinal model of residential satisfaction*. Building Evaluation Springer.
- Hesari, E., Peysokhan, M., Havashemi, A., Gheibi, D., Ghafourian, M., & Bayat, F. (2019). Analyzing the dimensionality of place attachment and its relationship with residential satisfaction in new cities: The case of Sadra, Iran. *Social Indicators Research*, 142(3), 1031-1053.
- Hur, M., Nasar, J. L., & Chun, B. (2010). Neighborhood satisfaction, physical and perceived naturalness and openness. *Journal of Environmental Psychology*, 30(1), 52-59.
- Karuppannan, S., & Sivam, A. (2011). Social sustainability and neighbourhood design: an investigation of residents' satisfaction in Delhi. *Local Environment*, 16(9), 849-870.
- Krūmiņš, J., Sechi, G., & Bērziņš, M. (2018). Residential satisfaction and mobility behaviour among the young: insights from the post-Soviet city of Riga. *Revue Belge de géographie*, 3. <https://doi.org/10.4000/belgeo.28347>
- Lee, S. W., Ellis, C. D., Kweon, B. S., & Hong, S. K. (2008). Relationship between landscape structure and neighborhood satisfaction in urbanized areas. *Landscape and Urban planning*, 85(1), 60-70.
- Lelévrier, C. (2013). Social mix neighbourhood policies and social interaction: The experience of newcomers in three new renewal developments in France. *Cities*, 35, 409-416.
- Lu, M. (1999). Determinants of residential satisfaction: Ordered logit vs. regression models. *Growth and Change*, 30(2), 264-287.
- Marans, R.W., & Rodgers W. (1975). Toward an understanding of community satisfaction. In A. Hawley, & V. Rock (Eds.). *Metropolitan America in Contemporary Perspective* (pp. 299-352). Halsted Press.
- Mohit, M. A., Ibrahim, M., & Rashid, Y. R. (2010). Assessment of residential satisfaction in newly designed public low-cost housing in Kuala Lumpur, Malaysia. *Habitat international*, 34(1), 18-27.
- Morris, E. W., & Winter, M. (1975). A theory of family housing adjustment. *Journal of Marriage and the Family*, 37(1), 79-88.
- Riazi, M., & Emami, A. (2018). Residential satisfaction in affordable housing: A mixed method study. *Cities*, 82, 1-9.
- Sahraoui, Y., Youssofi, S., & Foltête, J. C. (2016). A comparison of in situ and GIS landscape metrics for residential satisfaction modeling. *Applied Geography*, 74, 199-210.
- Smrke, U., Blenkuš, M., & Sočan, G. (2018). Residential satisfaction questionnaires: A systematic review. *Urbani Izziv*, 29(2), 67-82.
- Ukoha, O. M., & Beamish, J. O. (1997). Assessment of residents' satisfaction with public housing in Abuja, Nigeria. *Habitat International*, 21(4), 445-460.