

Determinants of Residential Satisfaction towards Low-cost Housing in Terengganu

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ABSTRACT

Many problems in housing arise because many low-income families have no access to loans for buying a home. The success of the housing program depends not only on the allocation of housing units but also on other factors affecting residents' needs, satisfaction, and better living. This study identifies the impact of design factors, quality, location, public amenities, the surrounding environment, culture, safety, community, and neighborhood on the residential satisfaction of low-cost housing in Terengganu. Research method quantitative using by questionnaire instrument and 278 samples in occupied low-cost housing. Data analysis uses IBM-SPSS-AMOS version 21.0 and Structural Equation Modeling (SEM). Design features that are the satisfaction of low-cost dwellers are the bedrooms, living room, family, activity space provided, built with high-quality materials and location a developing and well-equipped area, public facilities areas are places of worship, playgrounds, open space and practiced cooperative attitudes, helping together, maintaining harmony, comfortable and safe for living. Findings show the design, quality, location, and the surrounding environment, have a significant direct impact on the satisfaction of low-cost houses provided, but not for Community and the neighborhood. Overall, the location was the primary choice, followed by the design and quality building.

Keywords: Design, Quality Building, Low-cost Houses, Neighborhood, Residential Satisfaction

1. INTRODUCTION

Housing has become a primary public issue in Malaysia and worldwide, especially for affordable and low-cost housing. It has been treated as the main agenda for the state government in their planning and development program. According to Maslow's Hierarchy of Needs Theory, [1], housing forms one of the humans' basic needs, which must be fulfilled before moving to the following hierarchy: the philological needs such as having a car having a relationship and self-fulfillment. Unfortunately, land and housing costs are often too high for low-income families and poverty communities.

Occupant's or resident's satisfaction in housing studies usually focused on their living environment factors [2,3] and rarely on the housing management, delivery, and related issues such as price and location. Most State Governments in Malaysia strive to come out with solutions

to solve housing woes, especially to low-income household groups (including squatters), as soon as possible as it is part of the responsibility to the public. They start from the Seventh Malaysia Plan (1996-2000), Malaysia Government, and Eight Malaysia Plan (2001-2005). Malaysia's Government is committed to providing adequate, affordable, and quality housing for all Malaysians, focusing on the low-income group [4]. However, a comparison of the demand with low-cost housing constructed at all states in Malaysia showed the imbalance due to cost during Malaysia and Asia's economic crisis from 1996 until 2003. Residential satisfaction is an essential indicator of housing conditions that affect the individual quality of life. It determines how they respond to their residential environment, house design, construction quality, and surrounding facilities.

Many problems in housing arise because many low-income families in Asia, Latin America, Africa, and even in a developed country have no access to mortgages or loans for buying properties or buying a home. The failure of many low-income families to access mortgages or loans is viewed as a symptom of more significant underlying problems of poverty, low wages, and unemployment in the country [5]. In Malaysia, the Government's commitment to developing low-cost housing started during the First Malaysia Plan (1966-1970). However, the construction of medium and high-cost housing has exceeded the targeted level. The massive construction of medium and high-cost housing has contributed to property overhang [6]. According to Unit Perumahan SUK Terengganu, from 1980 to 2016 Terengganu State Government has built 18,087 units of low-cost housing to cater to low and insufficient household income. However, the success of housing programmers does not only depend on the mere provision of housing units but also on other factors that affect the needs of residents, satisfaction, and better life.

Since the third Malaysia Plan, the housing programmer's implementation, particularly on the low housing projects, has not met the target [7] due to high demand, financial constraints, difficulty finding a suitable location, and high cost of construction. As a result, housing affordability has not improved significantly where average national house prices remained at 4.4 times of median income (affordable range is 3.0 and below), with lower affordability recorded for some advanced states and urban cities.

Recently, increases in the demand for affordable housing have been fueled partly by increases in middle-low income groups in communities and those who live in poverty. In addition, an increase in the divorce rate has created affordable housing demand as family members are separated and want to live their own lives. However, the high demand for low-cost houses will burden the authority and officials to process applications that contributed to the delays in distributing houses to eligible ones. Besides that, using the same design house plan creates discomfort for the occupants, especially those with large families.

A comfortable home is a dream for all. Even though the Government gives full support to improve house facilities and conducive environment, the mental aspects of residents should be counted in mind. The Government has to provide huge allocation to do maintenance and repair cause of vandalism which affects livability satisfaction. A good neighborhoods atmosphere should be a resident's culture.

2. RESEARCH METHODOLOGY

The research method used is quantitative, where the survey method is a quantitative research procedure that is very suitable for large populations and samples representing the research population. The findings from the quantitative analysis can provide a holistic understanding of research questions [8,21]. Therefore, findings involving large sample sizes can be generalized from samples to populations with the same background. The survey method involves collecting data through a questionnaire as the main instrument [9,10,21]. According to [11,21], this questionnaire is efficient for large populations to get a more comprehensive sample description of the question inquiries, especially for large samples and distances from one another and cost.

Therefore, the questionnaire is the most suitable measuring instrument for use in this study. The advantages of using questionnaires are easy to manage, process, analyze, and information directly from samples in a short time [12,21].

Data were analyzed using Structural Equation Modeling (SEM) with IBM-SPSS-AMOS program version 21.0 with two main models, namely the measurement model and the structural model. Before the SEM test, initial adjustment tests should ensure that the tested indicator represents the measured construct. There are two analyzes as prerequisites before the SEM analysis is performed: (1) Exploration Analysis Factor (EFA) and (2) Confirmation Factor Analysis (CFA). Validation factor analysis (CFA) is a test of the measurement model to ensure that each construct meets procedures such as validity and reliability for each experiment [9,13,14,19,21,25,26]. Comparison of model measurement is essential to ensure that any latent construct in this study is compatible with the data studied to continue with SEM analysis [13,14,21,26].

Using the CFA method can assess how factors are observed significantly to the latent construct used. This assessment is done by examining the stiffness value of the regression pathway from factor to the observed variable (factor loading) rather than the relationship between factors [19,21]. Through CFA, any item not conforming to the measurement model is derived from the model. This inequality is due to the low load factor value. Therefore, researchers need to apply the CFA process to all model-related constructs, either separately or collectively (combined CFA models) [21,22,23,24]. The compatibility of the hypothetical models tested is verified using the Fitness Indexes to see the values of Root Mean Square Error of Approximation (RMSEA < 0.08), Goodness of Fit Index (GFI > 0.90), Comparative Fit Index (CFI > 0.90), and Chi-Square/Degree of Freedom ($\chi^2/df < 5.0$). According to [21,25], if the value of χ^2 is less than 2.00 but significant, it should be noted whether the sample is large or vice versa. A sample size above 200 can cause χ^2 to be significant. Therefore, Hair and his colleagues propose two other indices, CFI and RMSEA, to ensure that the CFA analysis establishes a dimensionless research model. If the CFI value exceeds 0.90 and the RMSEA is less than 0.08, it proved that Unidimensionality exists for the formation of each construct.

3. RESULTS AND DISCUSSION

3.1 Confirmatory Factor Analysis (CFA)

Two models need to be analyzed to implement the Structural Equation Modeling-SEM Measurement Model and Structural Model. [14,15,16,18,21,22,23,24] suggest two steps to follow Structured Equation Modeling (SEM).

- a) Verification of the Measurement Model of all contracts involved through the CFA method.
- b) Model all constructs into Structural Models and Modeling Structural Equations.

According to [14,17,18,27,21,22,23,24], the Measurement Model per the research data is important to verify the SEM. If the Measurement Model does not match the data from the field, the Built-in Structured Equation Model is invalid. Therefore, the first step in SEM analysis is to determine the Measurement Model according to the data from the field. Model Compatibility Model Measurements with field data using CFA. Through the CFA approach, researchers examined statistically to validate the proposed construction model.

- **Validity and Reliability Test Model:** The assessments for Unidimensionality, Validity, and Reliability Models The measurements of this study should be carried out first before evaluating the compatibility of built models. Here is a little introduction to Unidimensionality, Validity, and Reliability.

- **Not Dimensionless:** [17,21,27] this requirement can be satisfied through a product deletion procedure with a weighted value factor. Low Factor Loading to achieve a set of Fitness Index. Goods with a weight value of less than 0.6 are considered unimportant for construct and need to be released [14].
- **Validity:** [17,21,27] there are three types of validity to be achieved with constructive models of Construct Validity, Convergence Validity, and Discriminant Validation.
- **Construct Validity:** Construct Validity refers to the accuracy of the measuring instrument used to measure the construct intended in this study. The construct validity explains how a statement in the item used can measure the constructs that the researcher wants to measure [14,15,18,21]. For example, the constructs Conformity achieve when all Fitness Indexes for development meet the specified level [14,15,16,21]. Table 1 shows the required values of three categories of compatibility indexes that by building Absolute Fit, Incremental Fit, and Parsimonious Fit models.

Table 1 Three Compatibility Index Categories as well as Recognized Index Types

Name of Category	Name of Index	Level of Acceptance
Absolute Fit Index	RMSEA	RMSEA < 0.08
	GFI	GFI > 0.90
Incremental Fit Index	AGFI	AGFI > 0.90
	CFI	CFI > 0.90
	IFI	IFI > 0.90
	TLI	TLI > 0.90
	NFI	NFI > 0.90
Parsimonious Fit Index	Chisq/df	Chi-Square/ df < 3.0

Source: [14]

3.2 Analysis of the Impact between Constructs Location, Design and Quality, Surroundings Environment, Community Neighborhoods to Residential Satisfaction

Analysis by using SEM yields a standard regression value between the construct and the usual regression value, and both have their utility. Figure 1 shows the standardized estimates regression weight findings, whereas Figure 2 shows a typical unstandardized estimates regression value due to the SEM procedure. An essential summary of the SEM findings in Figure 1 (standardized estimates):

- The value of R^2 to build Residential Satisfaction (RS) is 0.54. This shows four constructs of predictors in the model (see arrow), namely Location (LC), Design and Quality (DQ), Surroundings Environment (SE), Community Neighborhoods (CN), contributing 54% to Residential Satisfaction (RS) among the populations in the study.

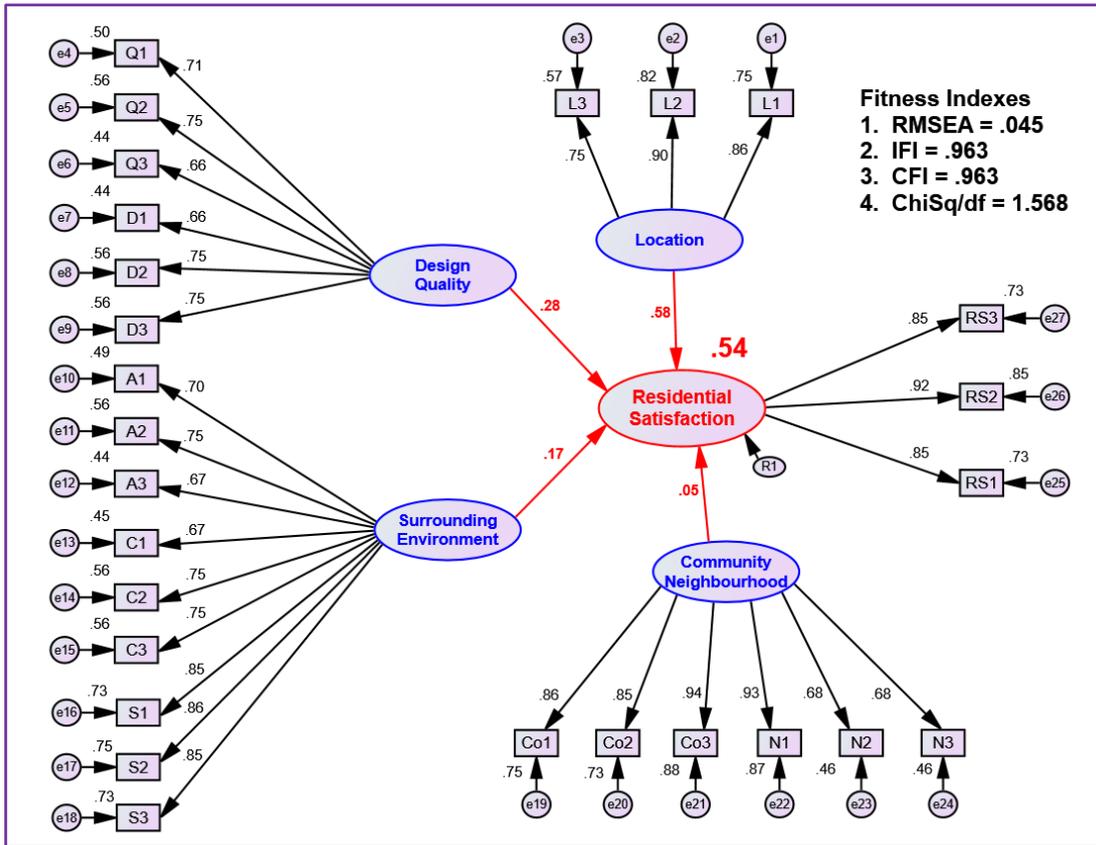


Figure 1. SEM Findings Indicate the Standardized Regression Value between Constructs

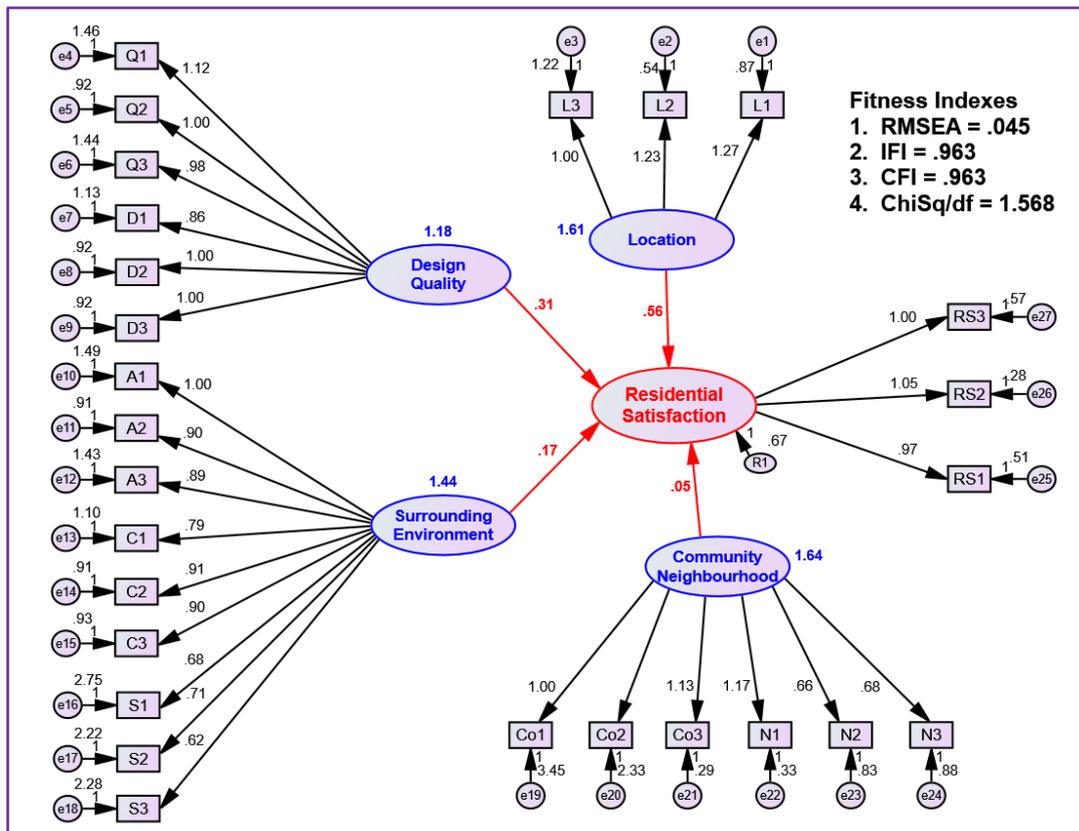


Figure 2. SEM Findings Indicate the Unstandardized Regression Value between Constructs

Figure 2 shows the findings of regression values between the constructs in the model to build the required regression equation and test the following hypothesis. An essential summary of the SEM findings is in Figure 2 (Unstandardized estimates regression value). Regression equations for LC, DQ, SE, CN and RS are as follows:

$$RS = 0.56LC + 0.31DQ + 0.17SE + 0.05CN \text{ (R}^2 = 0.54 \text{ or } 54\%)$$

Furthermore, the researcher will test every hypothesis proposed in this research. Table 2 shows the approximation of the direct effects of each independent construct on the dependent construct in the model, as shown in Figure 1 above. Table 2 shows the results of the hypothesis testing of the direct effect of the independent construct on the dependent construct.

Table 2 Regression Coefficients between Construct Value and Probability (p)

Construct	Construct	Estimate	S.E.	C.R.	P	Label	
RS	<---	LC	0.557	0.069	8.112	0.001	Significant
RS	<---	DQ	0.312	0.076	4.106	0.001	Significant
RS	<---	SE	0.171	0.057	2.973	0.003	Significant
RS	<---	CN	0.050	0.047	1.075	0.282	Not Significant

***Significant value at the level of significance, $p < 0.001$

Hypothesis testing in Table 3 is based on the SEM findings from Figure 1 above.

Table 3 Hypothesis Test of Direct Impact between Constructs

Direct Effect Hypothesis	P	Decision
H ₁ : The location of housing has a significant direct impact on the satisfaction of low-cost residential housing provided.	0.001	Supported
H ₂ : Design and quality have a significant direct impact on the satisfaction of low-cost residential housing provided.	0.001	Supported
H ₃ : The surrounding environment has a significant direct impact on the satisfaction of low-cost residential housing provided.	0.003	Supported
H ₄ : Communities and neighborhoods have a significant direct impact on the satisfaction of low-cost residential housing provided.	0.282	Unsupported

3.3 Impact of Location on Residential Satisfaction

Table 4 shows that Location (LC) has a significant direct impact on Residential Satisfaction (RS) with regression weight estimates (β) is 0.557 at a significant level of 0.001 (Estimate = 0.557, CR = 8.112, $p < 0.001$). The value of β means that Location (LC) constructs have a positive and significant effect on the construct of Residential Satisfaction (RS). That indicates that when Location increases by 1-unit, Residential Satisfaction will increase by 0.557 units.

Table 4 Regression Coefficients between Construct Value and Probability (p) for Location (LC)

Construct	Construct	Estimate	S.E.	C.R.	P	Label	
RS	<---	LC	0.557	0.069	8.112	0.001	Significant

***Significant value at the level of significance, $p < 0.001$

3.4 Impact of Design Quality on Residential Satisfaction

Table 5 shows that Design Quality (DQ) has a significant direct impact on Residential Satisfaction (RS) with regression weight estimates (β) is 0.312 at a significant level of 0.001 (Estimate = 0.312, CR = 4.106, $p < 0.001$). The value β is indicating that Design Quality (DQ) constructs have a positive and significant effect on the construct of Residential Satisfaction (RS). This means that

when Design Quality (DQ) increases by 1-unit, Residential Satisfaction (RS) will increase by 0.312 units.

Table 5 Regression Coefficients between Construct Value and Probability for Design Quality (DQ)

Construct	Construct	Estimate	S.E.	C.R.	P	Label	
RS	<---	DQ	0.312	0.076	4.106	0.001	Significant

***Significant value at the level of significance, $p < 0.001$

3.5 Impact of Surrounding Environment on Residential Satisfaction

Table 6 shows that Surrounding Environment (SE) has a significant direct impact on Residential Satisfaction (RS) with regression weight estimates (β) is 0.171 at a significant level of 0.003 (Estimate = 0.171, CR = 2.973, $p < 0.003$). This value of β means that Surrounding Environment (SE) construct positively and significantly affect the construct of Residential Satisfaction (RS). That indicates that when Surrounding Environment (SE) increases by 1 unit, Residential Satisfaction (RS) will increase by 0.171 units.

Table 6 Regression Coefficients between Construct Value and Probability (p) for Surrounding Environment (SE)

Construct	Construct	Estimate	S.E.	C.R.	P	Label	
RS	<---	SE	0.171	0.057	2.973	0.003	Significant

***Significant value at the level of significance, $p < 0.001$

3.6 Impact of Community Neighborhood on Residential Satisfaction

Table 7 shows that Community Neighborhood (CN) has a not significant direct impact on Residential Satisfaction (RS) with regression weight estimates (β) is 0.050 at a significant level of 0.282 (Estimate = 0.050, CR = 1.075, $p < 0.282$). This indicating that Community Neighborhood (CN) constructs have a not significant effect on the construct of Residential Satisfaction (RS).

Table 7 Regression Coefficients between Construct Value and Probability (p) for Community Neighborhood (CN)

Construct	Construct	Estimate	S.E.	C.R.	P	Label	
RS	<---	CN	0.050	0.047	1.075	0.282	Not Significant

*** Significant value at the level of significance, $p < 0.001$

4. CONCLUSION

Overall, the CFA analysis on the measurement model for the constructs of location, design quality, surrounding environment, community neighborhood, and residential satisfaction, has been shown to have reached the fitness index. Inference analysis findings also show that design quality, surrounding environment and location, have a positive and significant effect on the construct of Residential Satisfaction. Nevertheless, the community neighborhood construct has not affected the construct of Residential Satisfaction. This study explains that the location, design quality and surrounding environment, are the priority areas for low-cost house dwellers' satisfaction amongst sample surveys, but community neighborhood factors are not a priority for low-cost dwellers among survey samples.

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