



A Study on the Influences of Socio-Cultural Characteristics on Residents' Satisfaction in Low-Cost Housing in Kuala Lumpur

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Abstract

The development of housing often needed to be considered both economic and socio-cultural elements. Certain variables, such as residents' experience and socio-cultural backgrounds, have influenced how people perceive their living environment. Past researchers have highlighted several issues associated with low-cost housing and showed that Malaysia's housing policies still failed to provide a comfortable living area for the low-cost income group. Moreover, previous studies mainly focused on the residents' demographic characteristics as the influential factors. Therefore, this paper tries to fill this gap by (i) identify the socio-cultural characteristics of residents (ii) analyse the relationship between residents' satisfaction and their socio-cultural characteristics. This is important since the study related to this aspect remains insufficient and their characteristics might affect the level of satisfaction of residents in terms of housing necessity.



Article History

Received: 05 September 2022

Accepted: 10 October 2022

Keywords

Housing Necessity; Low-Cost Housing; Satisfaction; Socio-Cultural; Characteristics.

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Doi: 10.12944/CRJSSH.5.2.07

Based on the purposive sampling, the low-cost housing residents were selected. A questionnaire survey has been conducted on 93 residents of PPR Seri Aman in Kuala Lumpur and the data was analyzed using factor analysis and Pearson's correlation analysis. Findings from the study revealed that the residents were fairly satisfied with the dwelling unit features and neighborhood facilities. The low level of satisfaction among residents was heavily influenced by the yard, kitchen, dining space, parking available, sidewalks and connectivity of paths, traffic nearby, and the distance to take public transport. Further suggestions or recommendations are proposed to improve these situations or to help for future development planning.

Introduction

Vision 2020 aimed to develop a Malaysian society economically growing fully as well as united and enjoyed a high quality of life. The Malaysian government introduced the National Development Policy (NDP) under the Second Outline Perspective Plan (OPP2) to aim the vision. The housing policy ensures that every Malaysian can own a reasonable and affordable house and utilize related facilities, especially for low-income families (Ministry of Housing and Local Government Malaysia 2011). Through housing programmes, several affordable house schemes were provided to people, such as People's Housing Program (PPR), Rumah Mesra Rakyat (RMR), Perumahan Penjawat Awam Malaysia (PPAM), and 1 Malaysia Housing Project (PR1MA) (The Malaysian Administrative Modernisation and Management Planning Unit 2021).

The development of housing often needed to be considered both economic and socio-cultural factors. Certain variables, such as residents' experience and socio-cultural backgrounds, have influenced how people evaluate their living environment (Makinde 2015). Hence, the resident's assessment from the different socio-cultural background reflected a different level of satisfaction. The social or cultural components include the residents' ethnic, religious, and household size. Therefore, it is essential to determine the impact of residents' socio-cultural backgrounds on their satisfaction with low-cost housing in Kuala Lumpur to identify residents' needs and improve their quality of life.

Problem Statement

Although the current poverty line index in Kuala Lumpur has recorded a small proportion,

low-income earners still face problems in purchasing affordable housing. The high land and construction cost increased the housing price and brought challenges to Kuala Lumpur's poorest (Bakhtyar *et al.* 2013). According to the Kuala Lumpur Structure Plan 2020, several issues associated with low-cost housing have been identified, including low space requirements, a lack of community amenities, a scarcity of car parking spaces, high maintenance costs, and poor construction and material quality in low-cost housing projects (Hashim *et al.* 2012). Therefore, it shows that Malaysia's housing policies still failed to provide a comfortable living area for the low-cost income group.

According to Ismail *et al.* (2020), it was discovered that the design evaluation of public facilities in low-cost housing did not wholly satisfy the basic requirements of the residents, especially for the comfort of youths and it could influence the development of youth psychology. They failed to consider residents' cultural backgrounds. Their research was narrowly focused because it only examined public facilities, excluding other variables such as dwelling unit features, neighbourhood facilities, and cultural conditions, all of which are significant to indicate residents' satisfaction. Besides, Mohit, Ibrahim and Rashid (2010) also examined the new design for low-cost public housing on residential satisfaction by analysing the two sheltered components and three non-sheltered components. The result showed that the five housing components also have a possible association with the user's satisfaction. Nevertheless, they did not study the socio-cultural factors that are crucial to determine the proper house design.

Other housing satisfaction studies have focalized on residential and neighbourhood satisfaction, security, and maintenance. These scholars have centred the majority on sustainable housing requirement for the low-cost income group, and housing satisfaction evaluation act as a benchmark of residents' quality of life (Karim, 2012).

However, studies related to the resident's cultural background in the living environment remains insufficient. In fact, the existing studies mainly focused on the residents' demographic characteristics as the influential factors. Towards creating a more unified community and enhance long-term sustainability in Kuala Lumpur's low-cost housing development, this paper tries to measure the Malaysians' satisfaction in low-cost public housing based on their socio- cultural background. To achieve this aim, two objectives are formulated as follows, (i) To identify the socio-cultural characteristics of residents (ii) To analyse the relationship between residents' satisfaction and their socio-cultural characteristics.

Literature Review

Overview Low-cost Housing in Malaysia

The Malaysian governmental ways placed providing housing for low-income people as a primary element of the housing policy. Therefore, the related provision has become apriority in the Five Years National Plans since independence, and it was officially introduced in the First Malaysia Plan (1966-1970) for promoting

the well-being of the lower-income population (Zaid & Graham 2011). The state government cooperated with the federal government to develop the state' slow-cost housing plan. To ease the government's burden, a new policy was implemented in1981 for private housing developers, requiring them to provide a minimum of 30% of this housing type for every residential development (Shuid 2008). Therefore, it is unique in Malaysia because the state controls the allocation of low-cost housing, and the project is carrying out by either public or private sectors.

In the Fourth Malaysia Plan (1981-1985), the Malaysian government specifically defined low-cost housing as a housing unit that incorporates particular characteristics. The low-cost housing ceiling price was fixed at RM 25,000 based on the place and type of house and household income. It only sold for monthly household incomes less than RM 750 (Agus1997).

The government later newly classified th selling price to RM 42,000 to improve the quality and meet the private developer's requirement (refer to Table 1) (Ministry of Housing and Local Government 1998 The new design specifications for low-cost housing were also introduced to advance accommodation variety to fit residents preferences with the updated selling prices.

Table 1: The difference in the low-cost housing price structure and requirement for monthly household income in 1998 (Ministry of Housing and Local Government 1998)

	Price/ unit	Household Income/month
Before June 1998	Below RM 25,000	Below RM 750
After June 1998	Below RM 42,000 (Depend on the position of housing)	Below RM 1,500

Previously, most housing developers only focused on meeting their pre-determined goals and tended to neglect the housing quality. As a result, the low quality of housing has failed to meet the resident's housing needs, comfort, and religious demands (Tan 1980). Fortunately, the government's housing policies kept renewed and shifted from providing better quality, such as the primary objective

stated in the Tenth Malaysia Plan (RMK10) is to ensure the way to quality and affordable housing (Economic Planning Unit 2010).

Research Context

Due to the limited land space and its exorbitant prices, normally, the low-cost housing in Kuala Lumpur implemented the high-density housing

concept (Leong 1979). Therefore, the Peoples' Housing Programme (PPR) is built to replace slum housing and meet low-income people's needs, especially around Kuala Lumpur. PPR housing is focusing more on the family. PPR housing consists of PPR for sale (PPRM) and PPR for rent (PPRS). For example, PPR housing in Kuala Lumpur included PPR Sg. Besi, PPR Kg Batu Muda, and PPR Taman Wahyu II (Construction Industry Development Board Malaysia 2019).

Local Government to determine the selling price of low-cost housing in Kuala Lumpur, which cannot exceed RM 42,000. In Kuala Lumpur, as shown in Figure 1, the number of low-cost housing launches was zero, while the demand for low-cost housing was 3.02%. Hence, the demand and supply in Kuala Lumpur still have a significant gap in 2018. This was due to the increasing number of citizens from rural to urban areas (Aziz, Ahmad and Nordin, 2012).

The City Hall Kuala Lumpur (DBKL) used the house price structure set by the Ministry of Housing and

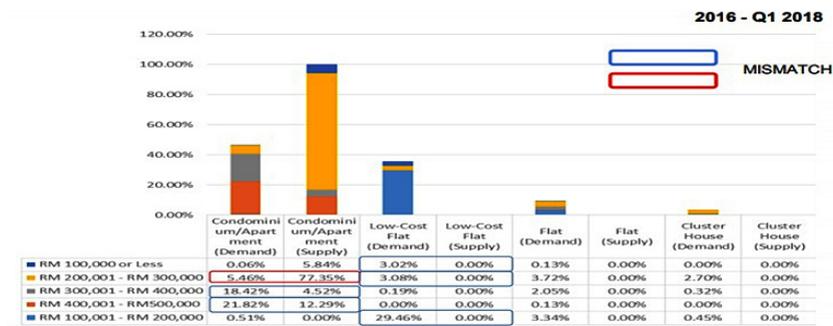


Fig. 1: Differences between demand (transactions) and supply (no. of launches) in mukim Kuala Lumpur (National Property Information Centre 2018)

Table 2 :Comparison of the design specification of low-cost housing in 1998 and in 2002 (Shuid 2008; Ministry of Housing and Local Government of Malaysia 2002)

Description	In 1998	In 2002
Elements	Minimum requirement (area or number of room)	Minimum requirement (area or number of room)
Floor space	550 sq. ft.	63m2
Bedroom	2	3
Kitchen	1	1
Toilet	1	2
Living room	1	1
Yard	-	1

Identify Dwelling Unit Features

As a special housing category, high rise low-cost housing is regulated by the National Housing Standard for Low-cost Housing Flats (CIS 2), which provides planning and design guidelines. All these projects must comply with the Construction

Industry Development Board (CIDB)'s guidelines to ensure that all construction is up to the standards. Aside from that, the specification must meet the requirements of the Street, Drainage and Building Act 1976 (SDBA) and the Uniform Building by Laws 1984(UBBL), which include safety, complete

infrastructure, health and physical development, and community development (Sulaiman, Ruddock & Baldry 2005; Sufian & Rahman 2008). All of these standards have tended to result in a better lifestyle for the lower-income group.

The government have been issued strict guidelines for each unit of low-cost high-rise housing in 1998 and 2002. There was an amendment in the minimum

floor space requirements and also the number of rooms and toilets (refer to Table 2). The size of the room was accorded to the CIDB defined (refer to Figure 2) (Ministry of Housing and Local Government of Malaysia 2002; Shuid 2008). However, there was a difference in the size of room function between CIS 2 and the existing design of PPR (refer to Table 3) (CIS 1998; Goh & Yahaya 2011).

Table 3: Comparison of room area between CIS 2 and PPR (CIS 1998; Goh & Yahaya 2011)

Room Function	CIS 2, 1998	PPR, 2000
	Area (m2)	
Living + Dining	25.20	24.19
Yard	-	2.90
Master Bedroom	11.70	10.82
Bedroom 1	9.90	6.67
Bedroom 2	7.20	6.51
Kitchen	5.40	4.52
Bathroom 1	1.80	3.07
Bathroom 2	1.80	1.71
Total Area	63.00	60.38

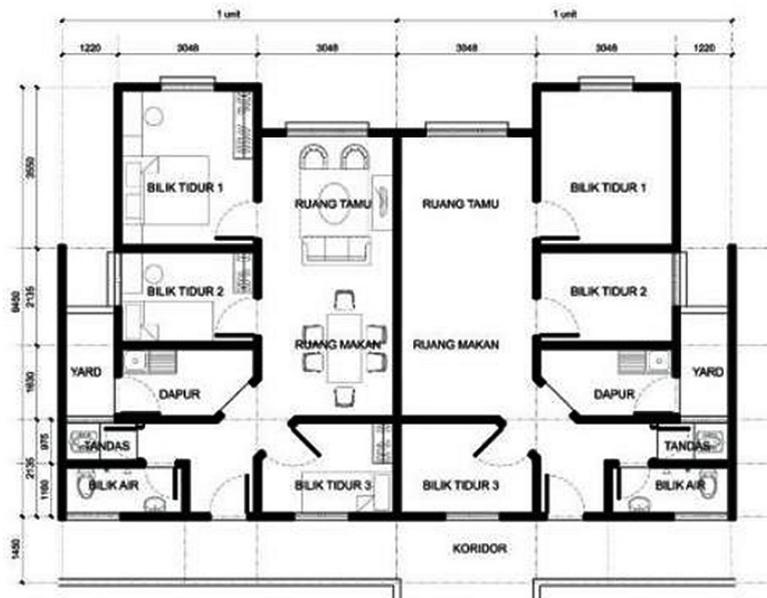


Fig. 2: Standard unit layout plan for low-cost flat (Goh & Yahaya 2011)

Housing design and quality affected both the user and the community. Developers and designers should be mindful of their responsibilities and adopt high design quality in housing projects (Chohan *et al.* 2015). Although CIS 2 has enhanced the standard of living for low-income households, the design quality has not met residents' expectations. (Sufian & Rahman 2008). Hence, to improve the design criteria for low-cost housing, it is important to obtain information from residents about their requirements or preferences.

Neighbourhood Facilities

Neighbourhood characteristics are divided into four elements by Andersen (2011) to ensure that the housing area is suitable to be occupied. Besides that, Azmi and Karim (2012) identified that neighbourhood facilities are based on the people usually reach by walking. The explanation of the characteristics is tabulated in Table 4.

Table 4: Characteristics of suitable building's surrounding and neighbourhood (Andersen 2011, Azmi& Karim 2012)

Types of characteristics	Explanation
Physical Environment	- the building's physical features and external condition - the entrance - physical disturbances like noise and contamination - the distance to the green area
Social Environment	- the area's status, safety, social network and lifestyle
Location and Public Facilities	- the availability of services and facilities - used to socialize and symbolize the culture
Location and Transportation	- the house's accessibility - example: distance to workplace and distance to relatives' house - provide most neighbourhood services, such as a school and a playground, are easily accessible by walk

Few authors defined neighbourhood facilities that should be provided in a residential environment. It can conclude that the type of neighbourhood services and facilities can be grouped as commercial facilities, recreational facilities, health facilities,

religious facilities, institution facilities, support services and others (refer to Table 5). The suitable distance and location for the neighbourhood facilities also are summarized in Table 6.

Table 5: Types of neighbourhood facilities (Ross 2000, Asiyanbola, Raji&Shaibu 2012)

Types	Example
Commercial facilities	Local shops, events centres, shopping centres
Recreational facilities	Parks, leisure centres
Health facilities	Clinic, hospital, health-care centres
Religious facilities	Temples, churches, shrine, mosques
Institution facilities	Schools
Support services	Bank, post office. police stations, fire service stations
Others	Traffic, sidewalks, connectivity of paths safety, aesthetic pleasure

Table 6: Suitable distance and location for neighbourhood facilities

Neighbourhood Facilities	Suitable Distance and Location	Author (s)
Institution facilities (Elementary school)	<ul style="list-style-type: none"> - should be provided within walking distance - should be accessible by footpath without passing the major streets. - near such centre of the residential area - near some other community facilities 	De Chiara & Koppleman (1925), Perry (1939)
Commercial facilities	<ul style="list-style-type: none"> - should be regarded as a local convenience and service facilities - within walking distance of around 5 - 15 minutes 	De Chiara &Koppleman (1925), Rani(2013)
Health facilities	<ul style="list-style-type: none"> - private health facilities can be found in most commercial strips - public health facilities are only available at specific sites, in standalone building units 	Rani (2013)
Recreational facilities	<ul style="list-style-type: none"> - easily accessible from the housing area and conveniently connected to it - within ¼ to ½ mile of any housing unit 	De Chiara &Koppleman (1925)
Support services (bank, post office)	<ul style="list-style-type: none"> - available in the neighbourhood area to ensure that residents have a convenient location to run their errands. - common to have these services at rows of shop houses - also available inside the shopping complex 	Rani (2013)

Table 7 :Summary of definition of residential satisfaction

Author (s)	Definition
Parker & Mathews (2001)	Satisfaction is a continuum of comparison of what has been received and what has been expected.
Campbell, Converse & Rodgers (1976)	The perception of the difference between residents' reality and expectations is how much one acquires to one's level of aspiration.
McCray & Day (1977); Djebuarni &Al-Abed (2000); Ogu (2002)	The level of comfort expressed by a person or a household member evaluates their expectations and feelings about the current housing situation and environment. It determines residents' observations of drawbacks in their current housing conditions to improve the current situation.

Despite government clinics in all areas of Kuala Lumpur, these services are not uniformly dispersed according to population distribution (Kuala Lumpur City Hall 2008). This problem mainly affects low-income individuals who cannot afford care at private clinics and live long distances from public facilities. Furthermore, according to the Kuala Lumpur

Structure Plan, although there are neighborhood and local parks in all strategic areas, these facilities are not spread equally, eased on population distribution (Kuala Lumpur City Hall 2008). The lack of leisure facilities was identified due to the city's limited space and high land value. As can be seen, the neighborhood facilities were essential for residents

to utilize in their daily routine. While developing low-cost housing, these facilities' location and design should also be considered in development planning.

Concept of Residential Satisfaction

According to Mohit and Raja (2014), before defining the concept of resident's satisfaction, the terms housing and satisfaction should be defined separately. They concluded that housing is not only an individual's housing structure. It also consists of the entire physical and social elements that formed the housing project. The various definition of residential satisfaction is summarized in Table 7.

According to Ogu (2002), if the resident's housing condition meets the requirements, they were expected to show a high housing satisfaction level. The criteria such as housing unit condition, privacy in the house, and maintenance of environmental facilities. In summary, residential satisfaction means that residents judge their satisfaction based on comparing real needs and expectations. It is also a way to express individual or family members' desires and feelings about their houses that are close to their favourite preference.

Factors related to Socio-cultural characteristics

Many factors related to socio-cultural characteristics affected the level of residential satisfaction. The factors are discussed and further detailed in the following sub-section.

Housing Characteristic

According to Huang and Du (2015), the fundamental measure of an objective residential setting is housing characteristics. Housing characteristics presented a more significant part in determining housing residents' satisfaction. Thus, residential satisfaction is closely associated with the housing's structural attributes such as size, number, location, and quality of building features. These features referred to the bedroom, kitchen, yard, residence hall, bathroom, and dining space (Salleh 2008, Mohit & Raja 2014).

Besides that, studies conducted by Mohit, Ibrahim and Rashid (2010) on the residents of newly designed Sungai Bonus discovered that housing features, particularly housing unit size, showed a positive relationship with residential satisfaction. In PPR Kuala Lumpur, the residents were satisfied with the current unit features (Goh & Yahaya 2011).

However, Mohd-Rahim *et al.* (2019) found that most PPR occupants felt dissatisfied with the size of the unit but happy with the housing's layout space. Chen, Zhang and Yang (2013) gathered data from a Chinese residential survey in Dalian and discovered that they prefer larger housing

Based on the previous studies, the PPR residents were quite satisfied with the bedrooms and bathrooms. Only bedroom 3 and bathroom 2 received a lower level of satisfaction than the other bedrooms and bathroom (Salleh 2008, Goh & Yahaya 2011, Anuar & Ramele 2017). Additional features such as kitchen, yard, dining room, and cloth line facilities were the dissatisfied unit design in affordable housing (Salleh 2008, Anuar & Ramele 2017, Ishak, Mohamad Thani & Low 2018, Dzulkal nine *et al.* 2020). Moreover, Goh and Yahaya (2011) pointed out that the position of the kitchen and yard were unsuitable because the cooking smoke from the kitchen would escape through the yard and the yard difficult to get the sunlight unless it faced north-south. In short, residents' dissatisfaction was mostly concerned on the common area of PPR housing.

In addition, in public housing in Nigeria, Ibem and Amole (2013) discovered that occupants showed extremely satisfied with their residences' privacy. Furthermore, Morris, Crull and Winter (1976) found that the increased number of rooms increased housing satisfaction. They concluded that the higher the density in the living area, the lower the housing satisfaction level. Hence, it can determine that residents were more satisfied with the larger housing spacing in their living area.

Neighbourhood Facilities

Satisfaction with the neighbourhood was one of the primary determinants in housing satisfaction (Ibem & Amole 2013). Huang and Du (2015) also stated that neighbourhood facilities could define the level of life convenience and influence residential satisfaction. The ways for a family to evaluate a neighbourhood is based on the four main criteria. The first criteria are that the neighbourhood facilities should be predominately residential. Second, it should be able for the residents to access quality institutions. The condition of the paths and roads is the third criteria for them to consider. Lastly, they also put homogeneity into the assessment regarding social class, culture, and ethnic group (Morris, Crull

& Winter 1976). Many neighbourhood facilities are provided in the community, such as transportation, academic institutions, medical centres, retail shops, financial institutions, clinics and community halls.

Ha (2008) concluded that both parking and landscaping facilities were dissatisfied by the resident who stayed in Korean' public housing, whereas they were mostly satisfied with the availability in the other three facilities, particularly healthcare, shopping and banking facilities. In Kuala Lumpur, residents of public low-income housing commented that it was near to city centre, also easy for them to reach the playground and public facilities such as hospitals, police stations, and fire stations, but also dissatisfied with the parking facilities (Sulaiman, Hasan & Jamaluddin 2016, Dzulkalnine *et al.* 2020). Besides that, Salleh (2008) and Mohd-Rahim *et al.* (2019) also discovered that the parking lots were unsatisfactory in low-cost housing. In addition, Lu (1999) discovered that residents of Hong Kong's public housing were dissatisfied with public transportation. In low-cost housing in Malaysia, Salleh (2008) also stated that residents who stay in Terengganu were dissatisfied with the public transport provided within the neighbourhood, but Mohd. Rahim *et al.* (2019) found that residents who stayed in Kuala Lumpur were most satisfied with the distance to public facilities. Besides that, Mohd-Rahim *et al.* (2019) also discovered that the location of PPR was strategic and near to the residents' workplace.

Awotona (1991) investigated that neighbourhood dissatisfaction happened because of the residents' housing estates' geographical location and travelling distances. The travelling distances included children travel to school, residents travel to working place, and medical centres. For instance, respondents in Nigerian public housing felt the most unsatisfied with the proximity to shopping amenities because of the distance (Ibem & Amole 2013). Moreover, Ozo (1990) also noted that residents' convenience to take public transportation and reach the shopping mall was also part of the assessment factors. Thus, when assessing residential satisfaction among public housing residents, location factors were fundamental (Baker 2002). Therefore, besides considering residential satisfaction based on housing conditions, the neighbourhood facilities are also important in residential satisfaction. Most residents

were concerned about neighbourhood facilities is the travel distance and convenience.

Household's Socio-Cultural Characteristic

Housing and socio-cultural factors are inextricably linked. It is an intangible factor that can influence one's behaviour, relationships, perceptions, and way of life. As a result of the development of cultural, religious, educational, and social conditions, some socio-cultural factors such as beliefs, attitudes, habits, and lifestyle behaviours have emerged (Bennett & Kassarian 1972, Adeleke, Oyenuga & Ogundele 2003). Malaysians come from various cultures, including Malay, Indian, and Chinese, all of which have long-standing and powerful cultural traditions that influence their daily lives. As a result, the cultural aspect of housing must be considered (Mohamad 1992).

Not only are housing structures ignorant of individual needs, but the units, with their Western layouts and cultural influences, are completely ignorant of the practices and lifestyles of all three cultures (Mohamad 1992). One of the factors is compartmentalizing different activities into the designated room is completely unfamiliar to Malay culture. Furthermore, these rooms' spatial relationships directly contrast the three cultures' living patterns, such as having the kitchen next to the living room. Hence, the housing units are unsuitable for anyone.

According to a study by Yap and Lum (2020), the results of Feng Shui considerations by ethnic groups in terms of frequency are Chinese and Indian in terms of numbers, while Malay in terms of interior arrangement. Differentiated from the Chinese and Indians, the Malays place a greater emphasis on the "living room". Surprisingly, the Malays placed a greater emphasis on "room shape" than on "street location." Besides that, the Malays were more concerned with the house's internal arrangement than with the environment. It is worth noting that both the Chinese and the Indians frequently related numbers with Feng Shui considerations.

"Orientation" topped the list for the Chinese in Yap and Lum's (2020) results. Furthermore, Mohamad (1992) stated that these three ethnic groups have different orientation preferences. Malay people prefer the west, while Chinese people prefer the

east due to Feng Shui, Indians prefer the east or west over the south.

In Islam, visual privacy is important. In Muslim homes, visual privacy has always been a crucial component and consideration. It also impacted the main entrance's location and design, the division of areas into public and private areas, and separate places for different gender parents and kids (Rahim 2015).

Besides that, Abdu *et al.* (2014) concluded that household size and age had a relationship with residential satisfaction, but educational level and length of residence were irrelevant to the assessment. Prior research has suggested that socio-cultural factors play a fundamental role in determining residential satisfaction. The decision to standardise is heavily influenced by culture. These aids in determining the housing value for various individuals, such as different cultures or sociology-demographic profiles. In Malaysia, other ethnic groups from diverse backgrounds live in low-cost public housing. This factor must take into account to live harmoniously and peacefully in the same residential area.

Materials and Method

The method used for this paper is quantitative data collection. The primary data was acquired through a questionnaire survey with closed-ended questions and a Likert scale to measure respondents' housing satisfaction levels. It consists of two extremes (strongly dissatisfied and satisfied) and a neutral preference associated with the middle response to satisfaction level (dissatisfied and satisfied). An ordinal scale is used to measure the rating. The targeted group are the residents who were staying in PPR Seri Aman. Based on the Yamane formula, a sample of 95 residents (n = 95) was chosen from a sum of 1600 house units (N = 1600). The sample size means 5.94% of the total housing population, with a 90% confidence level, and the results will not vary more than ±10%. A purposive sampling design has been chosen for this research. The selection is based on several reasons (i) the accessibility (location factor and time constraints) and (ii) confidentiality basis (openness to shares their points of view) (iii) they are the (v) they are the permanent residents that can be rely on and learned most as stressed by Meriam (2001).

This is consistent with Kumar (2018) who added that this form of sampling remains suitable for small population (ie case study research of PPR Sri Aman)

Meanwhile, Statistical Package for the Social Science (SPSS) Version 26 is used to analyse the collected data for results discussion. Factor analysis is used to identify the socio-cultural factors. This data further uses Pearson's correlation analysis to measure the degree of the linear relationship between two variables (socio-cultural factors and residential satisfaction).

Table 8 : Profile of the respondents

Characteristics	Number	Percentage
Gender		
Male	42	45.2
Female	51	54.8
Age		
18-30	44	47.3
31-40	20	21.5
41-50	25	26.9
>50	4	4.3
Ethnic		
Malay	27	29
Chinese	37	39.8
Indian	28	30.1
Others	1	1.1
Religious		
Muslim	29	31.2
Buddhist	35	37.6
Hindu	23	24.7
Others	6	6.5
Length of Residency		
1	12	12.9
2	20	21.5
3	22	23.7
>3	39	41.9
Household size		
1-3	23	24.7
4-6	54	58.1
7-9	11	11.8
>9	5	5.4
Education level		
Primary	1	1.1
Secondary	45	48.4
Tertiary	42	45.2
Others	5	5.4

Sample Composition

The questionnaires were created in Google Form, and the target is the residents who stay in PPR Seri Aman. The link to the survey form was posted on the PPR Seri Aman's social media page, and the total 93 responses were received after the deadline of three weeks. The frequency statistics of the 93 respondents in PPR Seri Aman are categorized into gender, age range, ethnicity, religious, length of residency, household size, and education level (refer Table 8).

Table 8 shows the gender frequency among respondents in PPR Seri Aman. Among the 93 respondents, the major gender group of respondents is female, with 51 responses received (54.8%). While for male respondents, there are 42 responses received (45.2%). As for the age range of the respondents, it can be categorized into young adults (ages 18-30 years), middle-aged adults (ages 31-40 years), older adults (ages 41-50 years), and senior adults (aged older than 51 years). The majority age range of respondents in PPR Seri Aman is between 18 and 30, with 47.3%. The second highest age range of 93 respondents received is between 41 to 50 years old, with 25 responses received (26.9%), followed by 20 respondents (21.5%) who are between 31 to 40 years old. Lastly, only 4 replies (4.3%) were from the respondents who are above 50 years old.

Meanwhile, most of the respondents in PPR Seri Aman are Chinese, with 37 responses received (39.8%) among the total number of 93 respondents. Indian respondents and Malay respondents are received similarly, with 28 replies (30.1%) and 27 responses (29.0%). There is only 1 response (1.1%) received from the other ethnic. Within religious context, majority of the respondents are Buddhist which received 35 responses (37.6%). 29 respondents (31.2%) are Muslim, which is the second-highest proportion of religious respondents in PPR Seri Aman. It was followed by 23 respondents (24.7%) who are Hindu and received 6 responses (6.5%) under other religions.

Whereas for length of residency, most of the respondents (39 responses, 41.9%) have stayed

over three years. There are 22 respondents (23.7%) who already stayed three years, and there are 20 responses (21.5%) received from the respondents with two years of residential experience. Lastly, 12 responses (12.9%) were obtained from the respondents with only one year of residential experience in PPR Seri Aman.

For household size, most respondents (54 responses, 58.1%) stay together with 4 to 6 people in a house. Then, following by 23 respondents (24.7%) stayed together with 1 to 3 people. Also, 11 responses (11.8%) were received from the respondents staying with 7 to 9 people. The household size for 9 people is only 5 responses (5.4%) received.

As for educational level, the number of respondents who graduated from secondary education and tertiary education is likewise, which recorded 45 responses (48.4%) and 42 responses (45.2%) correspondingly. 5 respondents (5.4%) finished their study at other education levels. At the same time, only 1 respondent (1.1%) completed till primary education level.

Results and Discussion

Factors Related to Socio-Cultural Characteristics

This study examined how the residents of the PPR Seri Aman responded to the different aspects of housing necessity. The analysis method is factor analysis to determine the main factors affecting residential satisfaction from these 26 questions. The interpreted data results extract 6 factors, show Eigen values exceeding 1, and these factors are deemed for 71.68% of the total variance across 26 variables (refer to Table 10).

According to IBM (2014), the Kaiser-Meyer-Olkin (KMO) sampling adequacy measure is statistical data that determines the proportion of variance in these study variables that underlying factors may cause. In this research, the value is 0.859, higher than 0.5, a high value (close to 1.0). It means that the responses given with the sample are adequate. Besides that, Table 9 shows the value of Bartlett's test of sphericity is 0, not more than 0.05 of the significance level. It also implies that this analysis is valuable with the data.

Table 9: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.859
Approx. Chi-Square		1576.977
Bartlett's Test of Sphericity	Df	325
	Sig.	.000

The factor analysis identified the six main factors the distance to neighborhood facilities, common housing area and privacy, sleeping area, management of housing area, overall housing design and size, and yard.

The first factor was labelled distance to neighbourhood facilities due to the high loadings by a set of related variables, including distance to clinic/hospital, shopping, market, support services, nearest town centre, workplace, school, and religious locations. This first factor explained 18.395% of the variance in all 26 components.

Next, Factor 2 derived was labelled common housing area and privacy. The important variables of this factor are the size and layout of bathroom 2, kitchen, bathroom 1, living area, dining space, and level of privacy. The variance explained by this factor was 13.790%.

The third factor relates to a set of variables of sleeping area in dwelling unit features. The size and layout of bedroom 2, bedroom 3, and master bedrooms are this factor's main components, which explained 12.297% of the variance.

Another dimension was Factor 4, labelled as management of housing area, related to the availability of parking, distance to take public transport, playground, traffic nearby, and sidewalks and connectivity of paths safety. This component accounted for 11.277% of the variance.

The fifth dimension to determine the elements used in residents' satisfaction was overall housing design and size, explaining 10.015% of the variance. According to the factor loadings, elements of this factor are the size of the house, housing design in relation to your daily life, and the number of bedrooms.

The least important dimension was the yard which included its size and layout. The variance explained by this factor was 5.907%. This analysis shows that three main important factors for residents' response to evaluate their satisfaction with their housing conditions in PPR Seri Aman are distance to neighbourhood facilities, common housing area and privacy, and sleeping area in dwelling unit features. It implies that these three factors are the primary residential characteristics that determine the residential satisfaction of the residents in PPR Seri Aman. This finding is supported by Huang and Du (2015) which concluded that neighbourhood characteristics, public facilities and housing characteristics were the main sources to determine the residents' satisfaction towards their housing. Besides that, as Ibem and Amole (2013) mentioned, satisfaction with the neighbourhood was one of the primary determinants in housing satisfaction. Hence, these elements were crucial to be examined in the residential satisfaction in PPR housing.

Relationships Between Residents' Satisfaction and Their Socio-Cultural Characteristics

Using Pearson's correlation coefficient (*r*), this section examines the relationship between residents' socio-cultural background and their degree of satisfaction with the elements of housing necessity. In Table xx, Pearson's *r* varies between +1 (perfect positive correlation) and -1 (perfect negative correlation). It determines that there is a relationship between the two elements.

Satisfaction with distance to neighborhood facilities tends to correspond with residents' gender and duration of the residency positively. In contrast, the same factor leads to a decrease in their education level. Residents' satisfaction with common housing areas and privacy negatively correlated with residents' ethnic, religious, and household size.

This result is supported by Mohamad (1992) that the housing area compartmentalized into different activities area is completely unfamiliar to Malay culture.

Table 10: Factor analysis of components of satisfaction variables in PPR Seri Aman

Residential attributes	Factor Loadings	Eigen value	% of	
			Variance	Cum %
Factor 1: Distance to Neighborhood Facilities		4.783	18.395	18.395
Distance to Clinic or Hospital	0.837			
Distance to Shopping	0.811			
Distance to Market	0.777			
Distance to Support Services	0.760			
Distance to Nearest Town Centre	0.655			
Distance to Work Place	0.600			
Distance to School	0.506			
Distance to Religion Locations	0.484			
Factor 2: Common Housing Area and Privacy	3.585	13.790	32.185	
Size and Layout of Bathroom 2	0.791			
Size and Layout of Kitchen	0.760			
Size and Layout of Bathroom 1	0.759			
Level of Privacy	0.608			
Size and Layout of Living Area	0.554			
Dining Space	0.540			
Factor 3: Sleeping Area		3.197	12.297	44.481
Size and Layout of Bedroom 2	0.816			
Size and Layout of Bedroom 3	0.726			
Size and Layout of Master Bedroom	0.640			
Factor 4: Management of Housing Area		2.932	11.277	55.759
Availability of Parking	0.848			
Distance to Take Public Transport	0.801			
Traffic Nearby	0.741			
Distance to Playground	0.686			
Sidewalks and Connectivity of Paths Safety	0.518			
Factor 5: Overall Housing Design and Size	2.604	10.015	65.773	
Size of House	0.508			
Housing Design Related to Daily Life	0.701			
Number of Bedrooms	0.503			
Factor 6: Yard		1.536	5.907	71.680
Size and Layout of Yard	0.530			

Table 11: Pearson's correlation coefficient (r) matrix between residential satisfaction components and socio-cultural characteristics of respondents

Variables	Gender	Age	Ethnic	Religious	Length of Residency	Household Size	Education Level
Factor 1	.206*				.359**		-.225*
Factor 2			-.243*	-.286**		-.221*	
Factor 3							.214*
Factor 4		-.213*					.392**
Factor 5			.269**	.253*			
Factor 6			-.209*	-.225*			

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Moreover, he also concluded that housing units are unsuitable for anyone because the rooms' spatial relationships directly contrast to the three cultures' living patterns. Furthermore, the relationship between privacy and residential satisfaction is also supported by Rahim (2015) which stated that visual privacy is a crucial component and consideration for Muslim homes. However, it contradicts the study done by Abdu *et al.* (2014), which indicated a positive correlation between household size and residential satisfaction. This current finding implies that the larger the household size, the lower the satisfaction in the common housing area. This study's finding suggests that the length of residency had a positive relationship with residential satisfaction. It was contrary to Abdu *et al.* (2014), who found no significant correlation between length of residence and residential satisfaction. The current finding indicates that the longer the residents' length of stay in PPR, the higher the residential satisfaction level.

Furthermore, respondents' education level is positively correlated with satisfaction with the sleeping area. Management of housing area satisfaction index negatively correlates with respondents' age, whereas the same factor has a positive relationship with education level. Satisfaction with overall housing design and size are positively associated with both residents' ethnicity and religious. This result is supported by Yap and Lum (2020) which the different ethnic groups were considered the various elements of Feng Shui in their housing internal arrangement and design. On the other hand, about the correlation between

educational level and residential satisfaction, the finding contradicts the study done by Abdu *et al.* (2014), which found that educational level had no relationship with residential satisfaction. However, Abdu *et al.* (2014) supported this finding that age was negatively associated with residential satisfaction. It means that the older residents were more satisfied with the housing compared to the young residents. However, the yard satisfaction score is negatively correlated with both residents' ethnicity and religious.

In summary, it concluded that the residents' socio-cultural characteristics such as gender and length of residency are positively related to residential satisfaction. At the same time, age and household size have a negative correlation with residential satisfaction. Other characteristics such as ethnic, religious and education level are positively and negatively associated with residential satisfaction. These findings conclude that different residents' socio-cultural characteristics have their own indicators to express their satisfaction in housing. These characteristics are the factors to consider in determining residential satisfaction.

Conclusion

According to the responses from 93 residents in PPR Seri Aman, it was found that the top three main factors for residents' response to evaluate their satisfaction with their housing conditions are distance to neighborhood facilities, common housing area and privacy, and sleeping area in dwelling unit features. It concludes that these elements are necessary to include in the residential satisfaction assessment.

From the factor analysis, these six factors were used to examine the different socio-cultural characteristics influencing the level of satisfaction of owners in terms of housing necessity. The research findings showed that socio-cultural characteristics such as gender and stay duration are positively related to residential satisfaction. In contrast, age and household size have a negative correlation with residential satisfaction. Other characteristics such as ethnic, religious, and education level are positively and negatively associated with residential satisfaction.

Thus, this research proved that the seven different socio-cultural backgrounds of the residents in PPR low-cost housing were related to their residential satisfaction. The study revealed that to improve residential satisfaction, it needs to consider socio-cultural and housing characteristics, especially in Malaysia, because other ethnic groups from diverse backgrounds live in low-cost public housing.

For further recommendation, this research has evaluated two aspects from dwelling unit features and neighborhood facilities. Although there were many in the assessment of low-cost housing, there is still a lack of evaluation of other elements. Therefore, it is suggested that future research consider other relevant factors such as management, maintenance services, quality of the building, and quality

of residents' lifestyle from the perspective of the residents and other professionals by comparing standard guidelines in Malaysia and other countries.

In addition, the evaluation of residential satisfaction in PPR low-cost housing in Kuala Lumpur requires a larger sample size. Hence, it is suggested that future research can survey more PPR housing in other locations to collect more opinions from the different backgrounds of residents. Eventually, the analysis can provide explicit feedback on the latest condition of PPR housing and, therefore, is helpful for future research and development planning.

Acknowledgement

The authors are grateful to the Department of Quantity Surveying from the Faculty of Built Environment (FOBE) TARUMT for providing the opportunities to carry out this research area. The authors also appreciate any constructive comments from reviewers and are solely responsible for any mistakes from this manuscript.

Funding

None

Conflict of Interest

None

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