FACTORS AFFECTING HOUSING AFFORDABILITY AMONG THE MIDDLE-INCOME GROUP IN SELANGOR

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ABSTRACT

This study aims to determine the factors affecting housing affordability among the middle-income group in Selangor and rank the factors affecting the housing affordability for this group. Malaysia has experienced rapid urban growth with the increase of urban population due to urbanisation and rapid economic activities since the 1950s. The rapid urban growth increases the population in the urban area, leading to increased income levels and migration. This phenomenon has undoubtedly affected the housing sector in the country. The housing sector in Malaysia has experienced fluctuating prices as the demand for housing in the market increase. As house purchase is influenced by affordability, it is important to understand and determine factors influencing the perception of affordability among middle-income households to provide affordable housing for this group. The scope of this research concentrates on the middle-income group in Selangor. The questionnaire was distributed to 100 respondents from the middle-income group in Selangor. The data from the questionnaire were analysed using descriptive analysis and Relative Importance Index (RII) analysis. The study found six factors affecting housing affordability among the middle-income group in Selangor: house price, monthly income, housing loan, location, number of working adults in a household, and health status.

Keyword: Factors affecting housing affordability, middle-income group.

INTRODUCTION

A house provides shelter, an important basic physical need for humans. It also indicates the living status of an individual and the society (Mariadas, Abdullah, & Abdullah, 2019). In this regard, proper housing reflects an individual's wealth and a country's prosperity. Owning a house benefits not only the society but also individuals. Living in a conducive house can enhance children's cognitive skills and reduce behavioural problems. (Teck Hong, 2013). However, housing issues, including affordability, have become more profound in developed countries (Musa, Tawil, Che-Ani, & Basri, 2015). Housing affordability represents' consumers' ability to afford a house. In this regard, housing affordability denotes a person's capability to finance the cost of housing rights (A. Bujang, Jiram, Zarin, & Jaafar, 2015). (Baqutaya, Ariffin, & Raji, 2016) stated that house affordability has become a threat to low-income and middle-income households. The Malaysian government has launched several affordable housing programmes under the country's development plans to provide quality housing at a reasonable price to lower and middle-income households to increase home ownership among Malaysians (Zain, 2012). The primary target of the National Housing Policy (NPH) is to offer sufficient quantity and quality affordable housing for Malaysian citizens. The affordable housing program will benefit low and middle-income households earning from RM2 500 to RM7 500 a month. Under the programme, buyers are offered houses priced between RM100 000 and RM300 000 per unit (Ministry Of Housing And Local Government, 2018).

The government housing programme provides access to affordable housing to buyers include single mothers, the elderly, people with disabilities, and people from low income, providing them opportunities to buy their own house (Bujang A. A., Shapee N. A. S., Abu Zarin, 2017). There are various interpretations of what affordable housing entails. According to Aziz (2018), houses priced between RM 42,000.00 and RM400,000.00 are considered affordable. Meanwhile, some private developers categorised affordable housing as below RM500,000.00 and RM1,000,000.00, and the government categorised houses below RM300,000.00 as affordable. Despite introducing the affordable housing programme, house prices have continued to increase in recent years (Nozin, Majid, & Said, 2009). Compared to demands, there is high concern over the need for housing, as evident in most housing policies around the world (A. Bujang, Jiram, Zarin, & Jaafar, 2015). In Malaysia, the house affordability issue is more profound among middle-income groups as many think it is very hard to own a house in most cities and towns (Aziz & Hanif, 2010).

Therefore, this study aims to determine the factors affecting the housing affordability among the middle-income group in Selangor and rank the factors affecting the housing affordability of the middle-income group in Selangor. This study conducted a literature review and performed a descriptive analysis of respondents' demographic profiles to determine the factors affecting housing affordability. Furthermore, the Relative Importance Index (RII) analysis was conducted to rank the factors affecting housing affordability among the middle-income group in Selangor.

LITERATURE REVIEW

The literature review included past works on housing affordability among the middle-income group, specifically in Selangor. According to Rowley & Slack (2004), a literature review extracts the available academic literature in the specific field and outlines the most current research in the subject area. It is also possible to determine areas for further study through the review of past academic works.

Table 1: Factors affecting housing affordability

Factors	1.	House Price	(A A Bujang, Jiram, Zarin, & Anuar, 2015; Hashim, 2010; Rahim & Munaaim, 2008; Yap & Ng, 2018; Zain, 2012; Zyed, 2014)
	2.	Monthly Income	(A A Bujang et al., 2015; Duan, 2011; Jayantha & Lau, 2016; Rahim & Munaaim, 2008; Wilson, Ismail, & Aziz, 2019)
	3.	Housing Loan	(Baqutaya, Ariffin, & Raji, 2016; Hashim, 2010; Ismail, Bujang, Jiram, Zarin, & Jaafar, 2015; Mariadas, Abdullah, & Abdullah, 2019; Rahim & Munaaim, 2008; Yap & Ng, 2018)
	4.	Household Expenditure	(Ahmad Ariffian Bujang, Zarin, & Jumadi, 2010; Hassan, Hamdan,

			Abdullah, & Abdullah, 2018; Nozin et al., 2009; Rahim & Munaaim, 2008)
5.	Education Level		(A A Bujang et al., 2015; Ahmad Ariffian Bujang et al., 2010; Linneman & Megbolugbe, 1992; Wong, Hui, To, & Chung, 2010)
6.	Marital Status		(A A Bujang et al., 2015; Rahim & Munaaim, 2008)
7.	Location		(Hashim, 2010; Hassan et al., 2018; Hing & Singaravelloo, 2018; Nozin et al., 2009; Rachmawati, Shukri, Azam, & Khatibi, 2019; Yap & Ng, 2018; Zain, 2012)
8.	Number of Working Adult In Household		(Mariadas et al., 2019; Rahim & Munaaim, 2008)
9.	Age		(A A Bujang et al., 2015; Rembiasz, 2017; Wong et al., 2010)
10.	Health Status		(Wong et al., 2010)

House Price

House price is one of the financial factors affecting housing affordability. The high house price has decreased the purchasing power of middle-income households (Rahim & Munaaim, 2008). In this light, while people from there are some affordable housing offered to people from the lower-income group, house prices are still increasing due to the rise of cost and demands, which caused most housing available unaffordable to people from this group. The rise of the property market value has made developers increase house prices (Rahim & Munaaim, 2008). Yap & Ng (2018) also mentioned that affordable housing providers should consider multiple approaches, such as house price-to-income ratio and buyers' monthly income, to determine the range of house prices. The low housing affordability is also due to the price of available properties in one area (Bujang, Jiram, Zarin, & Anuar, 2015). Musa, Tawil, Che-Ani, & Basri (2015) found the house price is the main important reason they will consider when buying a house. Zyed (2014) stated that higher house prices would benefit the seller but disadvantage the purchaser. The Ministry of Housing and the Government of Malaysia efforts on any plan that can control the market price of housing and solve the problem of high house prices to advance low-income earners having their own house since 1995 (Rahim & Munaaim, 2008). The housing price in Malaysia increased from the 70s even though there was a price fall in 1998 due to the financial crisis. When the property price increases, more companies unrelated to the property market begin to develop the housing since they notice that market imbalance is beneficial for the proprietary property and sellers. Some companies even rather pay attention to developing residential projects than main companies' activities (Zain, 2012). According to Hashim (2010), the increasing house price and the low-interest rate has contributed to the mortgage borrowing client and enabled them to spend at high rates, but when the price of housing drops, the slowdown in growth and borrowing with the reasonable effect of lower house prices lead to lower household expenses which also balancing the economic growth and sectoral. The changes in house price are the built-in characteristics in the local demographics and economics, for instance, GDP, construction cost, rate of inflation, housing finance, and other aspects linked to the population. The increasing Malaysian population has also expanded the housing demand and led to high housing prices (San Ong, 2013).

Monthly Income

Jayantha & Lau (2016) stated that monthly income level positively impacts housing affordability, covering the mortgage repayment and initial payment. The statement is consistent with the findings of Duan (2011), where household income is one of the important factor determinants the housing affordability. Bujang et al. (2015) asserted that those who pay for homeownership more than 30% of the income are considered cost-burdened, which may have a problem achieving basic needs such as sufficiency of food, transportation, and medical care. According to Rahim & Munaaim (2008), the relationship between household earnings and house price influences housing affordability. In this regard, high-earning households will have more housing options while low-earning households will only afford low-cost housing. In the meantime, earning is affected by job opportunities and the type of job. Households' earnings differ based on status, for instance, people having children and having a single-income household. As house affordability differs across earnings and wealth, many will try to increase their earnings to afford a house. Wilson, Ismail, & Aziz (2019) mentioned that people from the middle-income groups who earn between RM3,860 to RM8,319 per month bear a burden of high living expenses because their income is insufficient to sustain their cost of living, especially in urban areas.

Housing Loan

Access to housing loans is another main issue that Malaysian citizens face. Low and medium-income earners may find it difficult to apply for housing loans due to the high house price, low-income increment, high-interest rate, and goods inflation (Baqutaya et al., 2016). A housing loan legally binds the owner's financially to the developer and the bank. It is important to consider the capability to pay back the loan when securing a bank loan (Mariadas et al., 2019). Usually, banks will determine the eligibility and financial capability of the loan applicants and consider their monthly earning against the property price. In this case, a high loan repayment amount incurs a high debt for the household. Exorbitant loan repayment could affect a family's quality of living (Yap & Ng, 2018).

Moreover, according to Rahim & Munaaim (2008), if the individual is incapable of paying the monthly loan repayment and has no sufficient income to buy essential things, they can be considered unable to purchase the house. In other words, housing affordability issues encompass house owners' difficulties in paying the high lending rate of their mortgage. Thus, homeowners should buy a house and pay the monthly mortgage easily with their current earning and bear the cost of interest charged by the financial institution (Hashim, 2010). (Hing & Singaravelloo, 2018) also argued that housing affordability issues also include the ratio between the cost of a house and the buyers' earning and obtaining a loan to purchase the house A. Ismail, Bujang, Jiram, Zarin, & Jaafar (2015) further revealed that the average middle-income Bumiputera household could only afford to purchase a house under RM250,000 with instalments of under RM1,000 each month.

Household Expenditure

Households usually will spend more than half of their income on housing expenditure. It could be argued that high housing expenditure and high interest could burden the household (Hassan et al., 2018). Nozin, Majid, & Said (2009) stated that these expenditures comprise monthly mortgage repayment, food, transportation, utility, equipment, education, savings, and others. The increasing household size will also contribute to more expenditure and decrease the housing affordability to buy a property at a higher price as they desire (Ahmad Ariffian Bujang et al., 2010). Yap & Ng (2018) mentioned that the housing cost increases faster than the income, contributing to a long-term housing affordability issue. Wong et al. (2010) found that higher housing expenditure decrease housing affordability. This is because the high expenses of housing expenditure will decrease the affordability of the individuals due to lower disposable income. Another aspect that could determine whether someone can afford to buy a house is to look at the expenditure and whether there is a remaining income to buy other essential things after paying the mortgage. In this sense, the expenses-to-earnings ratio could determine housing affordability (Rahim & Munaaim, 2008).

Education Level

Wong et al. (2010) proved that people with higher education tend to have higher housing affordability. Individuals with higher education would easily find a more stable job and higher income. In contrast, lower-income individuals are less likely to afford housing affordability. The better the educated of the individuals is, the more of the person has the future incentive to afford a house (Ahmad Ariffian Bujang et al., 2010). One of the factors contributing to the affordability level is education, especially to the lower and middle-income groups. They experienced affordability problems when their income enabled affordable housing prices (Linneman & Megbolugbe, 1992). Bujang et al. (2015) explained that the housing affordability issues faced by lower and middle-class groups are linked to the low work skills and education level. Subsequently, the rising housing price, low wages, and low wage increment reduce their ability to afford houses offered in the market.

Marital Status

Marital status plays an important role in deciding to own a house. (Rahim & Munaaim, 2008). In this light, married couples are keener to purchase a house based on three perspectives stated by Mulder & Wagner (2001), they have a stable financial status and desire to purchase a home, they feel their lives "regularly transition than single ones" and ready to make a long period of decision. At the same time, the desire to start a family leads to a greater demand for housing (A A Bujang et al., 2015).

Location

Location is also an important factor that heavily contributes to housing prices. Studies found a relationship between locations with the housing market (Hassan et al., 2018). Housing is a commodity located near the downtown area or central economic areas (Zain, 2012). People prefer to stay near their workplace, school, and infrastructure to save time and transport costs (Hing & Singaravelloo, 2018). Yap & Ng (2018) also found that many people chose to live in suburban areas instead of near the city centre. People prefer to travel longer to go to work. However, the long commute takes time and could incur a higher cost. Moreover, the long commute may cause exhaustion and substantially lower productivity (Hashim, 2010).

The size of the residential land and its location have become significant determiners of the demand for a house (Zain, 2012). Thus, a house with a good location will draw the client's attention to buy, and their interest to buy housing property will increase with a better location (Rachmawati et al., 2019). As a result, houses in certain areas will be more expensive than others. As mentioned, the measurement of housing needs is income, as shown by the individual indifference curve. Consequently, home buyers have to trade-off between the place near the town with a high mortgage payment and the place far away from the town with a high transportation fee (Nozin et al., 2009). According to Zain (2012), house locations are also linked to housing problems as the state government does not consider the location before starting a housing project. For instance, in Sg. Choh, Rawang which is close to the Produa Factory. The distance between the area to the closest city is about 30 km. While there are facilities for people to shop, get services, and pay utility fees, people living there find it hard to take public transportation. Buses are infrequent and not always available. It also takes about one or two hours to wait for the taxi from Rawang, which makes it difficult when there is an urgent situation. It is also close to the industrial park, and the residential area is exposed to air, sound, with water pollution.

Number of Working Adults in A Household

According to Mariadas, Abdullah, & Abdullah (2019), household income impacts the buyers' buying decision for the property. Many households are not ready to risk high mortgage payments if their earning decreases. Only the parents' income is considered household income in a household with adults and children. This is because the children would not stay too long with their parents as they will leave home at one time, especially after they are married (Rahim & Munaaim, 2008). Bujang et al. (2010) found that the number of working adults in a household has a positive correlation (0.157) with the significant level (0.033) of affordable housing prices. The positive correlation shows that the higher number of working adults in a household, the higher housing affordability.

Age

Housing affordability decreases with age. A buyer's age can influence the affordability to buy and own residential property (A A Bujang et al., 2015). Hence, older age will lower housing affordability. The individuals' working performance will decline with age (Rembiasz, 2017). Furthermore, they will reach retirement age as they grow older, and many cannot increase their earning and savings (Wong et al., 2010). The source of income will stop once the individual retires, and they will have to depend on their savings (Wong et al., 2010). At the same time, the house affordability problem becomes more serious due to the increasing house price and higher cost of living, especially 24 years old to 35 years old who are first-time homebuyers. Many have just completed their studies and started their first job at this age. Even though the government has provided initiatives like a first-time homeowners campaign, they still cannot afford a house (A A Bujang et al., 2015). The study of A A Bujang et al. (2015) also found that most Gen Y could not afford houses priced RM200,000 and below as their income is under RM3000. Gen Y's housing affordability problem when buying a house is due to the high house price, difficulty with the down payment, a lack of collateral for a mortgage, and the lack of low-cost homes available in the market.

Health Status

According to Wong et al. (2010), health status and the deteriorating health of the elderly decreases housing affordability. This is because the elderly are more willing to pay for the medical cost of the treatment than other expenses like purchasing a house.

METHODOLOGY

Before reviewing the research methodology in detail, a research methodology framework was created to determine the process to be followed to accomplish the established research objectives. Figure 1 illustrates the research methodology framework.
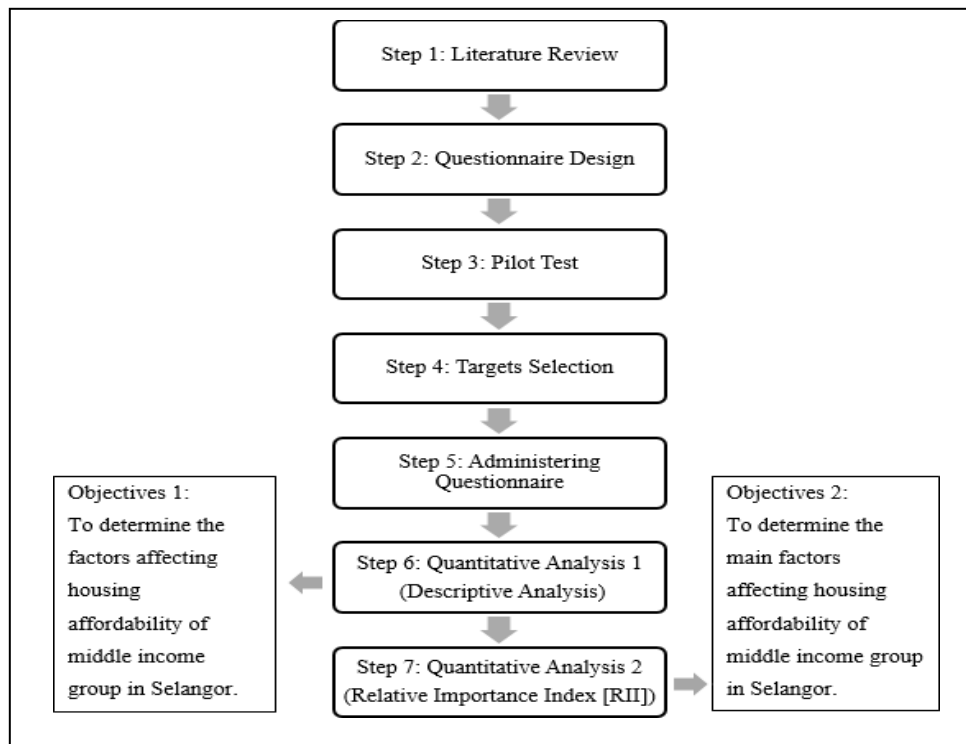

Figure 1: Research Methodology Framework

There are seven steps in the research methodology framework: the literature review, questionnaire design, pilot testing, targets selection, administering the questionnaire, quantitative analysis 1 for Objective 1, and quantitative analysis for Objective 2.

This research was carried out based on primary and secondary data. The data were analysed using quantitative analysis. The questionnaire was written in English and Bahasa Melayu to ensure the respondents could easily understand and complete the questionnaire. The questionnaire also included an introduction of the study on the front page, which describes the reason to conduct the research, details of the researcher, and the supervisor's name. The questionnaire consists of Section A, and Section B. Section A consists of items on the respondents' demography (9 questions). Section B consists of 10 questions with a five-point Likert scale. The questions are related to housing affordability factors among the middle-income earning group in Selangor. Each question requires the respondents to state their level of agreement for each factor using a Likert scale. The questions were created based on the literature and experts' recommendation criteria.

A pilot test was conducted to predict positive outcomes for the questionnaire. There are 30 questionnaires distributed to the chosen respondents during the pilot study. It aims to define the design of the questions and ensure the validity and reliability of the questionnaire before distributing it to a larger number of respondents. At the starting of the section, reliability tests were carried out to verify data reliability. Usually, the limit of the reliability coefficient is between 0 and 1. Results nearer to 1 reflect high internal consistency reliability represents (Rooshdi, Majid, Sahamir, & Ismail, 2018).

Secondary data from journals, conference papers, books, and government reports. These include the Property Market Brief H1 2019 and Report of Household Income and Amenities Survey. Data for analysis include housing stocks, property overhang, median household income, mean household income, and other data related to the property market in Malaysia, specifically in Selangor.

The target respondents in this research comprise the middle-income group living in Selangor. The probability sampling of simple random sampling was adopted in this study. The sample size was determined using the Taro Yamane formula. According to the Department of Statistics Malaysia (2019), the current estimated population in Selangor is 6528400. The study assumed that the confidence level is 80% and p= 0.1. Hence, the number of samples representing the middle-income group in Selangor was set at 100 respondents.

Quantitative analysis was used to determine the factors affecting the housing affordability of the middle-income group in Selangor. The data obtained were analysed using descriptive analysis. According to Akhtar (2016), descriptive analysis is statistical research used to determine the characteristics of a group, community, or people to describe a situation, structure, etc. The descriptive analysis could also be used to analyse behaviour and opinion. The descriptive analysis results were presented in tables and graphs to overview the findings. It presents the demographic profile of targeted respondents, including their gender, age, marital status, number of household members, number of working adults in their household, monthly gross income, education level, number of properties owned, and whether they applied for any government affordable housing programme.

The Relative Importance Index (RII) was used for quantitative analysis 2. It was used as it is suitable to determine the main factors affecting housing affordability among the middle-income group in Selangor. The respondents' level agreement based on the Likert scale was measured using the relative importance index (RII) (Ali & Fazili, 2017). According to De Vaus (1990), the formula to calculate RII is:

$$Difference\ of\ Average\ Score \tag{3.1}$$
$$= \frac{Highest\ Average\ Score - Lowest\ Average\ Score}{Number\ of\ Scale\ Categories}$$

$$Index = Difference\ Average\ Score + Average\ Score$$

The results were analysed using the relative importance index (RII) formula (Equation 3.3). A higher score reflects that the factor is more significant.

FINDINGS

Section A contains 9 questions about the targeted respondents' demographic profile. The researcher used frequency analysis to analyse the data from the survey. Table 4.1 and Figure 4.1 show the descriptive analysis for gender.

Table 4.1: Descriptive Analysis for Gender

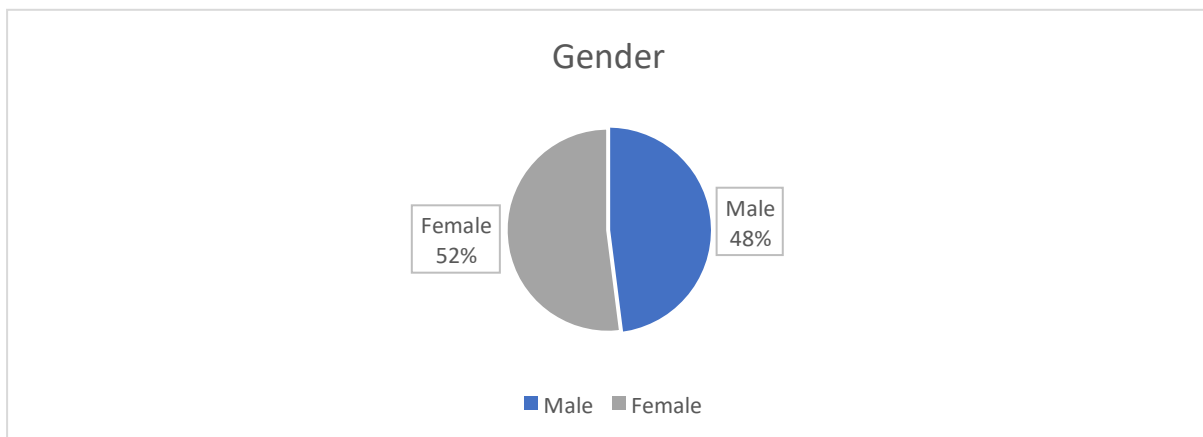|	Gender	Frequency	Percentage
Valid	Male	48	48.0
	Female	52	52.0
	Total	100	100.0

Figure 4.1: Gender

Out of the 100 targeted respondents, 52 per cent are female, and 48 per cent are male respondents.

Table 4.2: Descriptive Analysis for Age

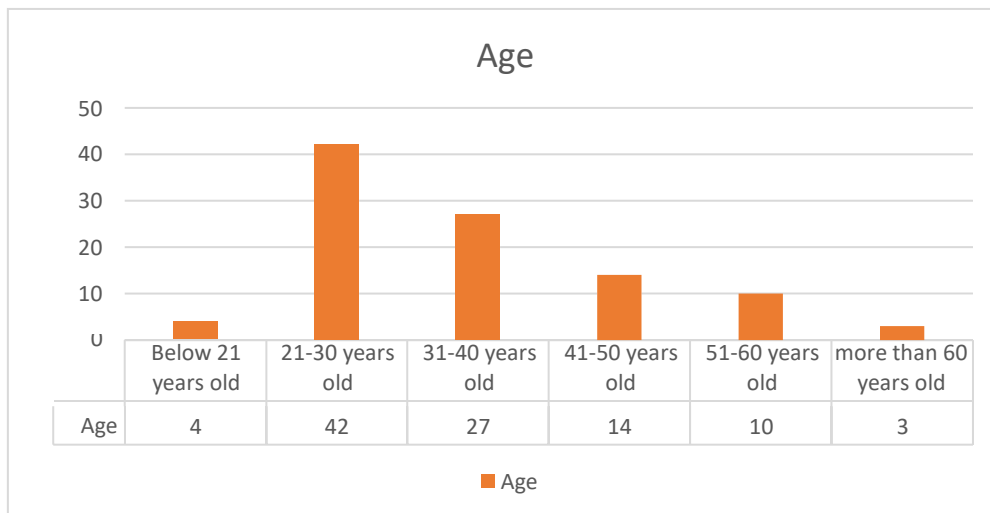|	Age	Frequency	Percentage
Valid	Below 21 years old	4	4.0
	21-30 years old	42	42.0
	31-40 years old	27	27.0
	41-50 years old	14	14.0
	51-60 years old	10	10.0
	More than 60 years old	3	3.0
	Total	100	100.0

Figure 4.2: Respondents' Age

Table 4.2 and Figure 4.2 show the descriptive analysis for the respondents' age. Out of the 100 respondents, the most frequent age range is between 21 to 30 with 42 per cent (42), while the lowest age range is 60 and more at 3 percent (3). 4 respondents (4) are aged below 21 years old, 27 per cent (27) are aged between 31 to 40 years old, 14 per cent (14) are aged between 41 to 50 years old, and 10 respondents (10%) are the aged between 51 to 60.

Table 4.3: Descriptive Analysis for Marital Status

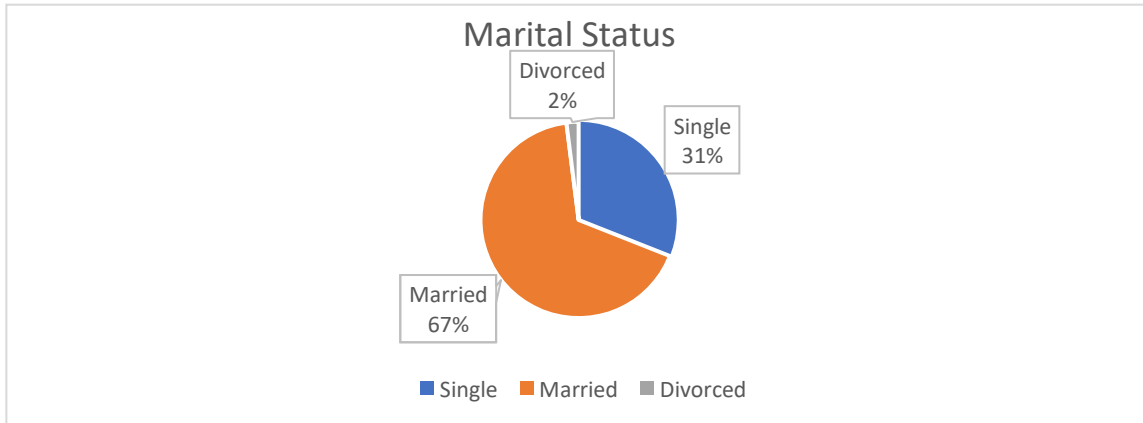|	Marital Status	Frequency	Percent
Valid	Single	31	31.0
	Married	67	67.0
	Divorced	2	2.0
	Total	100	100.0

Figure 4.3: Marital Status

Table 4.3 and Figure 4.3 show the descriptive analysis for the marital status of the targeted respondents. 67 per cent (67) of respondents are married, 31 percent (31) are single, and the remaining 2 percent (2) are divorced.

Table 4.4: Descriptive Analysis for Number of Household Members

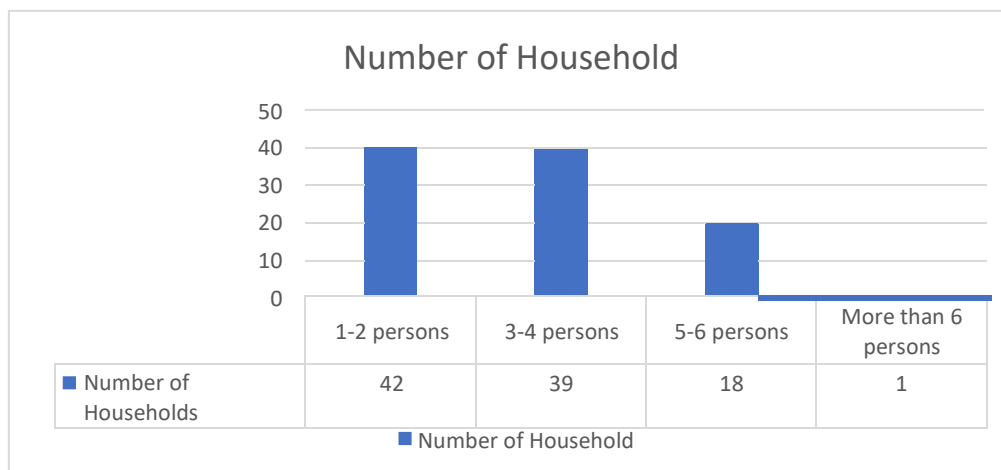|	Number of Household Members	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1-2	42	42.0	42.0	42.0
	3-4	39	39.0	39.0	81.0
	5-6	18	18.0	18.0	99.0
	More than 6	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

Figure 4.4: Number of household members

Table 4.4 and Figure 4.4 show the descriptive analysis for the number of members in the respondents' households. 42 per cent (42) of the respondents have 1 to 2 members in their household, while only 1 (1%) of the respondents have more than 6 members in their household.39 per cent or 39% of the respondents have 3-4 members in their household, and 18 (19%) of the respondents have 5-6 members. Table 4.5 and Figure 4.5 show the descriptive analysis for the number of working adults in the household.

Table 4.5: Descriptive Analysis for Number of Working Adults in A Household

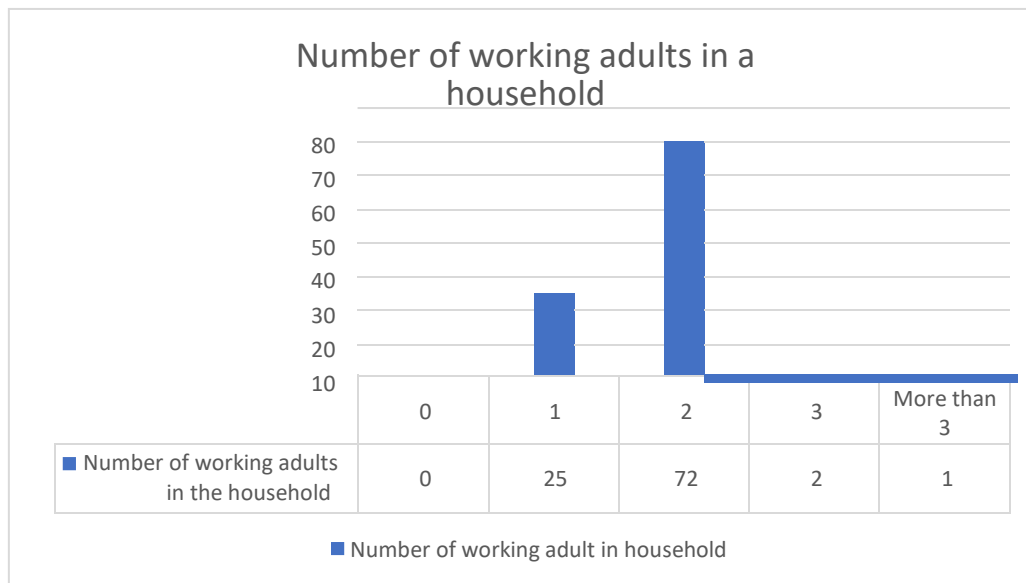|	Number of working adult in household	Frequency	Percent age
Valid	0	0	0.0
	1	25	25.0
	2	72	72.0
	3	2	2.0
	More than 3	1	1.0
	Total	100	100.0

Figure 4.5: Number of working adults in a household

72 percent (72) of the respondents have two working adults in their household, and no respondent has 0 working adults in their households. 25 per cent (25) of the respondents have 1 working adult in their household, while 2 per cent (2) respondents have 3 working adults in their household. 1 percent (1) respondent has more than 3 working adults in their households.

Table 4.6: Descriptive Analysis for Monthly Gross Income

	Monthly Gross Income	Frequency	Percentage
Valid	Less than RM 2,500	0	0.0
	RM 2,501- RM 3,500	25	25.0
	RM 3,501- RM 4,500	49	49.0
	RM 4,501- RM 5,500	17	17.0
	RM 5,501- RM 6,500	5	5.0
	RM 6,501- RM 7,500	3	3.0
	More than RM 7,501	1	1.0
	Total	100	100.0

Figure 4.6: Monthly Gross Income

Table 4.6 and Figure 4.6 show the descriptive analysis for the respondents' monthly gross income of the respondents. 49 or 49 percent of respondents have a monthly income of RM 3 501 to RM4, 000 while no respondent earns less than RM2500. 25% of respondents have a monthly gross income between RM2, 501 to RM3, 500 and 17% of respondents have a monthly gross income between RM4, 501 to RM 5 500. 5 per cent or 5 respondents are earning between RM5, 501 to RM6, 501 whereas 3 per cent (3) respondents are earning between RM6, 501 to RM 7, 500. Lastly, 1 respondent is earning more than RM7 501.

Table 4.7: Descriptive Analysis for Education Level

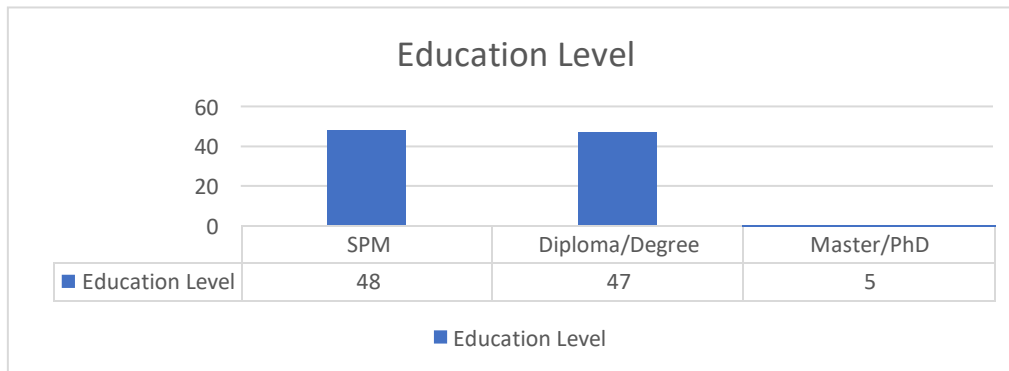|	Education Level	Frequently	Percent
Valid	SPM	48	48.0
	Diploma/Degree	47	47.0
	Master/PHD	5	5.0
	Total	100	100.0

Figure 4.7: Education Level

Table 4.7 and Figure 4.7 show the descriptive analysis for the respondents' education level. 48 per cent (48) of the respondents have SPM level education, followed by a diploma or degree with 47 per cent (47 persons) and lastly, Master or Ph.D. with 5% (5 persons).

Table 4.8: Descriptive Analysis for Number of Property Owned

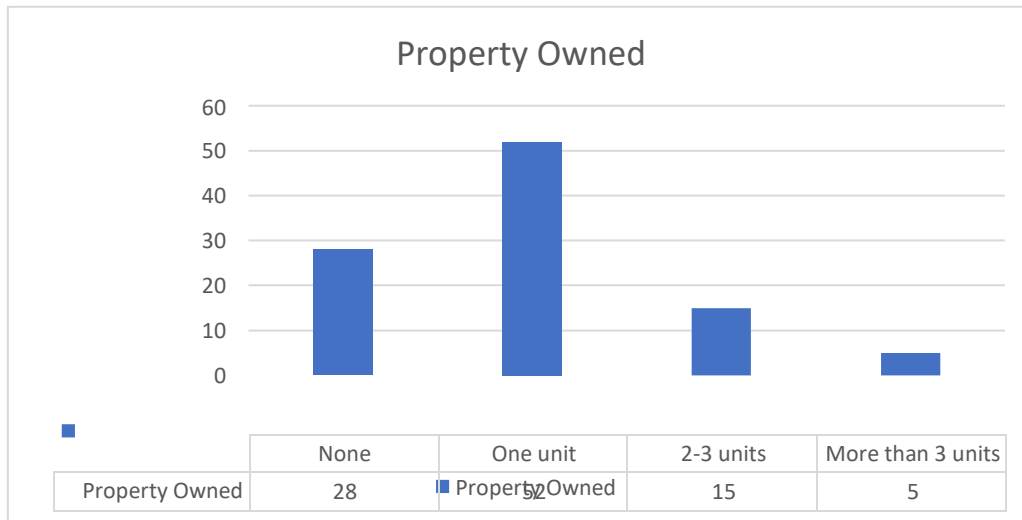|	Number of Property Owned	Frequency	Percentage
Valid	None	28	28.0
	One unit	52	52.0
	2-3 units	15	15.0
	More than 3 units	5	5.0
	Total	100	100.0

Figure 4.8: Property Owned

Table 4.8 and Figure 4.8 show the descriptive analysis for the number of properties owned by the respondents. Based on the results, the highest number of respondents own 1 property with 52%, while only 5% (5) own more than 3 units. 28% (28) of the respondents do not own any property, whereas 15 respondents (15%) own between 2 to 3 units

Table 4.9: Descriptive Analysis for Number of Respondents Involved in the Government's Affordable Housing Programme

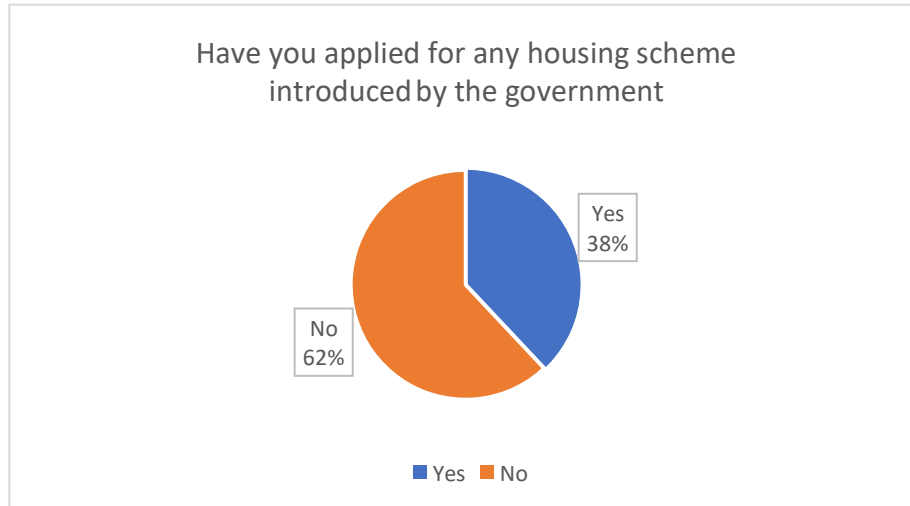|	Have you applied for affordable housing scheme introduced by the government	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Yes	38	38.0	38.0	38.0
	No	62	62.0	62.0	100.0
	Total	100	100.0	100.0	

Figure 4.9: Respondents Apply Government's Plan

Table 4.9 and Figure 4.9 show the descriptive analysis for the respondents applying the government plan. Among 100 respondents, 62% (62 persons) did not apply for any housing scheme introduced by the government, while 38% (38 persons) applied for the housing scheme introduced by the government.

Scale Of Measurement

Before distributing the questionnaires to the 100 targeted respondents, the researcher conducted a pilot test with 30 respondents to ensure reliability. The Cronbach's Alpha test was used to measure the validity and reliability of the data collected. The reliability test provides the coefficient value to measure the pilot test.

Table 4.10: Case Processing Summary

			%
Cases	Valid	30	100
	Excluded	0	0
	Total	30	100

Table 4.11: Reliability Statistics

N of items	19
Sum of item variable	13.0178
Variance of total score	84.6267
Cronbach's Alpha	0.8932

As shown in table 4.10, 30 sets of questionnaires were collected. Hence, the response rate for the pilot test is 100%. Table 4.11 shows that 19 items were tested to obtain the Cronbach's Alpha. The sum of the item variable is 13.0178, and the total score variance is 84.6267. The final Cronbach Alpha's result of 0.8932. It is within the "Good" internal consistency range between $0.9 > \alpha \geq 0.8$.

Relative Importance Index Analysis

Table 4.12: Result of Relative Importance Index

No	Factors	Score					Total score	Average score	Ranking
		1	**2**	**3**	**4**	**5**			
1	Housing price	0	0	1	10	89	488	4.88	1
2	Monthly Income	0	1	2	20	77	473	4.73	2
3	Housing loan	0	2	15	25	58	439	4.39	5
4	Monthly Expenditure	0	1	31	18	50	417	4.17	7
5	Education level	5	15	38	32	10	327	3.27	9
6	Marital status	10	6	52	12	20	326	3.26	10
7	Location	2	2	10	22	62	434	4.34	6
8	Number of working adult in household	0	3	5	10	82	471	4.71	3
9	Individual age	0	2	32	22	44	408	4.08	8
10	Health status	0	1	3	22	72	459	4.59	4

Table 4.12 shows the total and average score of the 10 factors affecting housing affordability of the middle-income group. The most significant factor affecting housing affordability among the middle-income group in Selangor is housing price, with total and average scores of 488 and 4.88. This result clearly shows that the housing price significantly affects housing affordability. The second most significant factor is the monthly income. The total and average score of factor monthly income with a total score of 473 and an average score of 4.73. This shows that the higher the monthly income, the more money can afford the housing. The third highest factor is the number of working adults in the household, with a total score of 471 and the average score of 4.71. The next factor affecting housing affordability is health status, with total and average scores of 459 and 4.59.

The housing loan factors scored 439 with an average of 4.39. Meanwhile, location obtained the total and average scores of 434 and 4.34. Monthly expenditure comes next with the total and average score of 417 and 4.17, followed by individual age with the total score with 408. Last but not least, education level obtained the total score and average score of 327 and 3.27. In contrast, the least affected housing affordability among middle-income groups is the marital status, with a total and average score of 326 and 3.26.

Index Range and The Importance of Factors Affecting Housing Affordability among M40 in Selangor

The index for each factor was calculated to determine its importance and effect on housing affordability. The formula for calculating the index value is:

$$Index\ value\ = \frac{Highest\ Average\ Score - Lowest\ Average\ Score}{Number\ of\ Scale\ Categories} \quad (4.1)$$

$$Index\ value = \frac{4.88 - 3.26}{5} = 0.32$$

The index range was calculated based on Equation 4.1, and each factor's importance is shown according to scale categories shown in Table 4.13.

Table **Error! No text of specified style in a document**.10: The Results of the Factors in Scale Categories

Scale Categories	Index Range	Factors	Score
Major Effect	4.58-4.90	House Price	4.88
		Monthly Income	4.73
		Number of Working Adult in Household	4.71
		Health Status	4.59
Moderate Effect	4.25-4.57	Housing Loan	4.39
		Location	4.34
Neutral	3.92-4.24	Expenditure Per Month	4.17
		Individual Age	4.08
Minor Effect	3.59-3.91	-	-
No Effect	3.26-3.58	Education Level	3.27
		Marital Status	3.26

As shown in Table 4.13, four factors majorly affect the housing affordability of M40 in Selangor in the scale categories of major effect with the index range of 4.58 to 4.90, house price (4.88), monthly income (4.73), number of working adults in household (4.71) and health status (4.59). Factors with moderate effect with the index score range of 4.25 to 4.57, the factor is housing loan (4.39) and location (4.34). The factors with a neutral effect score index range of 3.92 to 4.24 are expenditure per month (4.17) and individual age (4.08). There are no factors with minor effects with the index range of 3.59 to 3.91. Lastly, factors with no effect in the index range of 3.26 to 3.58 are education level (3.27) and marital status (3.26).

DISCUSSIONS

The first objective of this research is to determine the factors affecting housing affordability among the middle-income group in Selangor. There were 10 factors from the literature review derived from the literature review. These factors were verified using the results of the questionnaire. The ten factors are house price, monthly income, housing loan, household expenditure, education level, marital status, location, number of working adults in the

household, age, and health status. Descriptive analysis was conducted to obtain the frequency of these factors. Data from the questionnaire and descriptive analysis results found six factors significantly affecting housing affordability among the middle-income group in Selangor: house price, monthly income, housing loan, location, number of working adults in the household, and health status.

The second objective of this research is to rank the factors affecting housing affordability among the middle-income group in Selangor. Objective two was achieved through the Relative Importance Index (RII) analysis. House price ranked the most significant factor and has a major effect with 4.88. Most respondents agreed that they could not afford housing if the price further increases. The high housing price affects individuals' ability to buy a house and repay the loan (A. Bujang et al., 2015). The second most significant factor is monthly income, with the major effect at 4.73. In this regard, the respondents agreed that they need to consider their income distribution against the house price and other living expenses. Thus, income is the most vital factor in choosing the type of affordable housing (A. Bujang et al., 2015). The third most significant factor is the number of working adults in a household, the major effect of 4.71. This finding corroborates with Ahmad Ariffian Bujang et al. (2010), who also found that the higher the number of working adults in the household, the higher housing affordability. The number of working adults will directly influence household income and, subsequently, housing affordability. The next factor is health status which has a major effect with 4.59. The respondents agreed that poor health would affect income and workability, decreasing housing affordability. On the contrary, better health status will lead to higher productivity and work motivation.

The fifth-ranked factor is housing loans, with a moderate effect at 4.39. The respondents agreed that monthly loan payment is a burden if they fail to repay the housing loan. The monthly loan payment amount should not be more than one-third of the total income, and the high amount of loan repayment will affect affordability (A. Bujang et al., 2015). The sixth-highest ranking is the category's location, with a moderate effect of 4.34. In this light, house location will impact the spending on transportation, and transportation costs will create a burden on a household (Hassan et al., 2018). The seventh factor is a monthly expenditure with a neutral effect of 4.17. The high monthly expenditure will lead to difficulty affording housing (Ahmad Ariffian Bujang et al., 2010). This factor is followed by age, with an average score of 4.08, where age affects the demand for housing when starting a family (A A Bujang et al., 2015). The ninth-ranked factor is education level, with an average score of 3.27, indicating no effect. Only a handful of the respondents agreed that higher education would influence purchasing a house as higher education leads to a prosperous career and higher income. The lowest-ranked factor is marital status, with an average score of 3.26, indicating no effect. Only a small number of respondents agreed that it will be more affordable to purchase a house if they get married because their will have more stable finances.

CONCLUSION

This study found six factors affecting housing affordability among middle-income (M40) households in Selangor: housing price, monthly income, housing loan, number of working adults in housing, health status, and location. Among these factors, housing price is the most significant factor affecting housing affordability.

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