FACTORS INFLUENCING THE PURCHASING OF AFFORDABLE HOUSINGS: HOUSING PURCHASERS' PERSPECTIVE

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A project report submitted in partial fulfilment of the requirements for the award of Bachelor of Science (Honours) Quantity Surveying

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DECLARATION

I hereby declare that this project report is based on my original work except for citations and quotations which have been duly acknowledged. I also declare that it has not been previously and concurrently submitted for any other degree or award at UTAR or other institutions.

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APPROVAL FOR SUBMISSION

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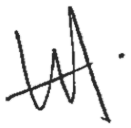
Signature : 

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ABSTRACT

The housing affordability crisis has been a severe issue in Hong Kong, London, Sydney, and including Malaysia. The purchase of unaffordable houses causes household stresses, strain to physical and mental health, and impeding the growth of the economy. On the other hand, the provision of affordable housings by the government was unattractive in terms of its attributes. Numerous studies were conducted on the preferences of housing in Malaysia. However, there are limited studies dedicated to the preferences of affordable housings from B40 and M40 house purchasers' perspectives. Therefore, this study aims to investigate the factors influencing the purchasing of affordable housings by house purchasers which sets out the purchasing requirements of housing purchasers in selecting and purchasing affordable housings. There are four main attributes identified in this study that influencing the purchasing of affordable housings, which are financial, general, accessibility, and neighbourhood. Questionnaires were distributed to B40 and M40 house purchasers and 119 responses were collected. Data obtained were analysed by Cronbach Alpha Reliability Test, Arithmetic Mean, Mann-Whitney U Test, and Kruskal-Wallis. This study discovered that house purchasers would prioritise financial attribute more than other attributes when purchasing affordable housings. This study also revealed that different social demographics house purchasers have different prioritisation in purchasing affordable housings. The findings of the research are useful to policymakers, local and housing authority, and property developers in the provision of affordable housing with attributes that are aligned with the preferences to house purchasers.

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LIST OF SYMBOLS/ ABBREVIATION

BLR	Base Lending Rate
BNM	Bank Negara Malaysia
CAGR	Compound Annual Growth Rate
CLT	Central Limit Theorem
DLP	Defect Liability Period
EPF	Employees Provident Fund
HBA	Housing Buyer Association
KPKT	Ministry of Housing and Local Government Malaysia
KRI	Khazanah Research Institution
LTV	Loan-to-Value
NAPIC	National Property Information Centre
PR1MA	Perumahan Rakyat 1 Malaysia
SPSS	Statistical Package for the Social Science
UNCHS	United Nations Centre for Human Settlement

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CHAPTER 1

INTRODUCTION

1.1 General Introduction

This chapter explains the background of the study by reviewing existing literature and identify the research gap. Besides, the research aim and three research objectives is also established. Other than that, the research methodology and scope of this research is briefly discussed.

1.2 Background of the study

Maslow (1987) implied that the basic human needs are arranged in a manner of a hierarchy of prepotency. Before the physiological needs such as hunger, thirst, and shelter are satisfied, all other needs become secondary. Hence, owning a house has always been one of the primary objectives of every person to satisfy their physiological need. However, Malaysia is no exception in failure to escape from the affordability of housing which is commonly faced among developing countries. Concern has been expressed on the sustainability of the property sector with the current unaffordability of houses in Malaysia (Said et al, 2016). While warning has also been issued by Khazanah Research Institute (KRI) concerning that such issue will aggravate if action is not taken (Ismail, Jalil, and Muzafar, 2015).

The concept of an affordable house is generally being understood as houses that can be secured without imposing any unreasonable burden on household incomes (Maclennan and Williams, 1990). Given that definition, the affordability of houses is relative to the household income, specifically the median household which occupied 60% of the population distribution of Malaysia. The National Property Information Centre (NAPIC) (2019) revealed that the median house price is around RM 289,646. However, the average housing price in Malaysia is around RM 426,155, which is 40% higher than the stipulated reasonable price of affordable housing which is RM300,000 at most (Ong, 2020). The disparity between the ideal median house price and the market average housing price has indicated that houses in Malaysia are generally

unaffordable, or at least not without incurring any financial stresses to the home buyer.

A similar situation was observed in India where it is facing a shortage of 18 million units of houses to accommodate the lower-income society (Gopalan and Venkataraman, 2015). Acolin and Green (2016) studied housing affordability in Brazil metropolitan and they found out the supply of new housing could not satisfy the amplifying growth of demand due to the rapid urbanisation and growth of the population in Sao Paulo. In extreme cases, the public rental flats in Hong Kong are notorious for their compact livable areas, which is less than 40 square meters, giving its nickname “micro-apartments” (Lau and Wei, 2018). Regrettably, Malaysia is far from being fortunate as Bank Negara Malaysia (2017) has reported that the house price of Malaysia has been consistently above 4 times the affordability standard since 2004.

While Puah, et al (2015) find the Malaysian property market to be a wavering characteristic and associate every market trough with a global economic crisis. However, it is widely agreed that the overhang of residential property is the result of the imbalance of supply and demand in the property market (BNM, 2017; Ismail, Jalil, and Muzafar, 2015; Ramlan and Zahari, 2016; Soon and Tan, 2019; Yap and Ng, 2018). The developer is a profit-centred organisation whose primary purpose is to generate profit from business activity and such objective has driven property developers to develop luxury and premium category of property that offers a much marginal profit (NST, 2019). However, these high-end properties are far beyond to be afforded by the financial capabilities of the common buyers.

Upon realisation of the dire property market by the government agencies, the Ministry of Housing and Local Government had introduced the National Housing Policy 2018-2025 Ministry of Housing and Local Government Malaysia (KPKT, 2018) to tackle the issues of overhanging property and to mitigate the abuse of property market. The main focus of the policy is to build 10 million affordable houses within the next 10 years, enabling low-income earners to own a house. Given that, the affordability of housing is a critical issue

in Malaysia which required the efforts and initiatives of the public and private sectors to alleviate it. Thus, this research dedicates a study on affordable housings in Malaysia.

1.3 Problem Statement

To solve the problem of oversupply of residential property in the market, there are several studies performed to determine the preferences from the aspect of the demand market. Tan (2012) evaluated the first-time home buyer's needs and preferences in greater Kuala Lumpur. The findings of the research shown that first time home buyers prefer a dwelling to be quality, surrounded by a good and safe environment, and situated at a strategic location. While Lizawati, et al. (2012) surveyed factors that influence the first-time home buyer's decision making. Their findings had suggested that financial factors, which include house prices and low-interest rates, were factors that influence the most when purchasing a house. Besides, Khan et al. (2017) had studied first-time home buyer's preferences in Malaysia and concluded that both economic and location are the priority factors when purchasing a house.

While Kumar and Khandelwal (2018) explored criteria that influence purchasing behaviour in the purchase of residential property in India. The finding shows that the price of houses and availability of home loans, which can be categorised as financial factors, were the priority criteria to be considered. A similar result of the above research was found in other studies as well (Lamsali et al., 2020). On the contrary, Salleh, et al. (2019) discovered that high values were given to neighbourhood security and locational factors by the house purchaser. Ismail and Shaari (2019) revealed that neighbourhood qualities were appreciated by the older generation whereas financial accessibility is the main concern by younger generations. Based on these previous studies, it was found that focus was placed on residential housings but not specifically on affordable housings.

There are several studies performed on the topic of sustainability of affordable housing. Chan and Adabre (2019) had studied the view of experts on the success criteria of sustainable affordable housing. The result had suggested

that the affordability of price and rental cost are factors necessary to build successful sustainable affordable housing. Chegut, Eichholtz, and Holtermans (2016) revealed that high quality and energy-efficient affordable housing is generally being sold at 6.3% more than their comparable peers. On the contrary, Gan et al. (2017) found that incorporating sustainability into affordable housing will eventually increase the affordability of housing. With all the emphasis from government agencies and academics, but the private sector has not been paying attention to the concept of sustainability. Arman et al. (2009) highlighted that there are still several conceptual and pragmatic challenges associated with sustainable affordable housing that the relevant stakeholders have to face before the goal can be achieved.

Based on the above studies, it is evident that the earlier studies had concentrated on the preferences of house purchasers when purchasing residential housings, but not on affordable housing. Whereas research on the topic of affordable housing only focuses on its benefits, barrier, and sustainability. However, limited research explores the preferences of house purchaser on affordable housing from house purchasers' perspectives. The disparity of knowledge of developers and customer's perception has resulted in dissatisfaction of consumers (Brown and Swartz, 1989). By bridging the gap of such issues, property developers may need to provide greater value to satisfy the need of house purchasers (Opoku and Abdul-Muhmin, 2010). Almond (1999) had also emphasised the importance of being knowledgeable of the decision-making process of the buyer as the value of the residential property is largely determined by the market demand. Hence, this study focuses on the factors influencing house purchaser's decisions in purchasing affordable housing.

1.4 Research Aim

This research aims to uncover the factors influencing the purchasing of affordable housings by house purchasers which sets out the requirements of housing purchasers in selecting and purchasing affordable housings.

1.5 Research Objectives

Three research objectives have been developed to realise the research aim:

i. To identify the factors influencing house purchasers in purchasing affordable housings.

ii. To prioritise the importance of factors influencing house purchasers in purchasing affordable housings.

iii. To compare the factors influencing house purchasers in purchasing affordable housings based on the differences in social demographic.

1.6 Research Methodology

The research began with defining the research problem, then various literature and previous study studies of related fields were reviewed. A list of influencing factors was then identified and categorised under four main attributes, which includes financial, general, distance, and neighbourhood. The questionnaire was formulated and distributed to potential house purchasers whose monthly household income falls at RM10,959 and below. The findings were collected and analysed using Cronbach's Alpha Reliability Test, Measures of Central Tendency, Mann-Whitney U Test, and Kruskal-Wallis Test.

1.7 Research Scope

This research focuses on the low and middle-income household, whose monthly household income is RM4,850 and below for low-income household (B40), whereas a monthly household income between RM4,851 and RM10,959 for middle-income household (M40) is targeted. Furthermore, the research solely investigates house purchasers residing in the area of Klang Valley.

1.8 Chapter Outline

This study has a total of five chapters. The first chapter provides the background of the study, explains the problem statement, establishes the research aim, objectives, methodology, scope, the outline of each chapter, and the summary of the first chapter.

Chapter two further discusses the topic and definition of affordable housing. Literature from previous studies is reviewed to provide an overview of the preferences and factors that will influence the purchase of housing. Chapter three identifies the design and conduct of the research. It also includes the data collection methodology and approaches to data analysis.

Chapter four presents the findings collected and results analyse from the questionnaire survey. The results obtained and analysed are compared and supported with relevant studies to verify the legitimacy of the results. Last but not least, Chapter five concludes the achievement of the study to the aim and objectives established. The research limitations and plausible recommendations and improvements are discussed for reference to the subsequent research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter comprises of the review of relevant literature on the importance of affordable housing and the various influencing factors that sets out the requirement of housing purchasers in selecting affordable housing.

2.2 Affordable Housing

Affordable housing is a term commonly used to express the nature of the housing issue faced by many developing nations. To the contrary of the pressing problem that the third world cities are facing which include a severe shortage in housing and informal housing, the issue of affordable housing is depicted as when a household is paying more than a certain percentage of its income to secure an appropriate and adequate housing (Hulchanski, 1995).

2.2.1 What is Affordable Housing?

Interestingly, there has been a long-running debate over the conceptual definition of affordability. Maclennan and Williams (1990) provided a general definition of affordability which is involved with securing a given standard of the house without imposing any unreasonable burden on household income. While Whitehead (1991) explained that the measurement of affordability is a standard define by the relationship of housing expenditure and household income. Stone (1993) defined the subject that resonance with Whitehead in which affordability is the relativity of incomes and prices. It is until this century that affordability is given a much definite interpretation by using a fixed expenditure-to-income ratio. There is no explicit documentation on the use of ratio, however, 30% of the household income is a ‘rule of thumb’ that is commonly adopted when measuring housing affordability (Nawawi, 2019).

However, in the examination of housing affordability, numerous human nature such as contentment, pleasures, and serenity that are part of a quality life is retracted from the equation (Hulchanski, 1995). Hence, the result of simple generalisations and the usage of rule-of-thumb in the assessment of household

ability to secure a house may be misleading (Carver, 1948). Therefore, being able to participate fully in a socially accepted lifestyle after paying both housing and non-housing cost may be a much human comprehension of housing affordability (Hancock, 1993; Townsend, 1979).

In Malaysia, according to House Buyer Association (HBA) (2019), affordable housing has to fulfil three criteria, which its price is ranged from RM150,000 to RM300,000, a minimum built-up area of 900 sqft, and have great connectivity to public transportation. Therefore, from the definition given by HBA, affordable housing is not only affordable in price but also able to provide adequate privacy, space, and physical accessibility.

2.2.2 The Needs of Affordable Housing

Although there has always been a non-conclusive debate over the approach and appropriateness of the method of measuring housing affordability. Ismail, Jalil, and Muzafar (2015) has adopted the median multiple approaches which were developed by the United Nations Centre for Human Settlement (UNCHS) to illustrate the housing affordability issue in Malaysia. Although there is no implication of restriction on the household of their purchases, the acceptable price of housing should be three times the multiple of a median annual household income, anything above it is considered unaffordable.

Foo (2020) reported that the growth of housing prices has been outweighed the growth of household income in Malaysia from 2010 to 2019. The disparity was shown greatly especially between the years 2010 to 2015 in which the compound annual growth rate (CAGR) for house prices and household income in Malaysia is 7.63% and 1.94% respectively (Foo, 2020). This shows that household in Malaysia has been overburden by the housing mortgage and do not have sufficient disposable income for a sustainable lifestyle. This phenomenon is continued to worsen by the occurrence of the black swan event, the Covid-19 pandemic in 2020, in which the gap of house prices and household income is expected to widen further (Foo, 2020).

Without a sufficient supply of adequate and reasonably priced housing, households are compelled to purchase housing at a premium. The purchase of

overpriced dwellings often places households into financial difficulties, and the constraint on spendable income is likely to impose negative effects on household general well-being. The sabotage of physical and mental health such as obesity (Bilger, Kruger and Finkelstein, 2017), excessive consumption of alcohol (Davalos, Fang, and French, 2012), marital conflict (Dew, 2007), and depression (Bridges and Disney, 2010) has been revealed to have a strong association with financial stress. On account of the facts, affordability should be an inherent characteristic and essential criterion when proposing new housing provision (Baker, 2006), rather than a result of any form of government subsidy or compromisation of built quality.

2.3 Preferences of House Buyer on Affordable Housing

The policymaker has been showing concern on the issue of affordability of housing by initiating an affordable housing scheme. However, the approach to counter the issue by the government has proven to be ineffective. The obvious example can be seen from the closure of the Perumahan Rakyat 1Malaysia (PR1MA) housing scheme which is coordinated under the National Housing Department. The PR1MA housing scheme promised to build one million affordable housing by the year 2020. However, according to the report by TheEdge (2018), only 1.6% of the target was achieved in the year 2018. Rubbing salt to the wound, there are 24 development projects under the PR1MA housing scheme that have been cancelled in the year 2020 (TheSunDaily, 2020).

There were several reasons that led to this scenario. First of all, the model of the housing scheme was erroneous from the beginning as it was set out to fulfil the political agenda instead of tackling the fundamental of the property issue (TheSunDaily, 2015). Furthermore, the housing attribute of PR1MA housing was not attractive in terms of accessibility to convenience and facilities (Ong, 2018). Besides, the applicant for PR1MA was facing difficulty in obtaining loan facilities from the bank due to the price of housing from the affordable housing scheme were greatly unaffordable (Supramani, 2021).

From the case of PR1MA, it is obvious that the government had understood the issue of housing affordability as a concept that may be

approached with a traditional solution of direct provision and allocation of affordable housing to meet the demand. The definition of need is the quantity and type of housing that is regarded as appropriate by the household (Whitehead, 1991). Although the initiative of the government to tackle the affordable housing issue was an appropriate motive to solve the property issue, the PR1MA housing scheme has under-emphasised the need of the household. In other words, the housing was built without the consideration of the house purchaser's preference. Without consideration of the house purchaser's preference of housing attributes, the product will not be attractive to the house purchaser. Hence, it requires a detailed study of this issue.

The preferences of house purchaser on affordable housing can be generalised under four distinct attributes, which includes financial attributes, general attributes, accessibility attributes, and neighbourhood attributes. A list of house purchaser's influencing factors as according to the previous studies was tabulated in Table 2.1.

Table 2.1: Previous Studies on Factors Influencing House Purchasers' Decision

No.	Influencing Factor	Previous Studies
	Financial Attribute	
1	Interest Rate	Kurniawan et al. (2020), Mariadas, Abdullah, and Abdullah (2016), Salleh et al. (2019) Thaker and Sakaran (2016), and Yap and Ng (2018)
2	Loan Facilities	Kumar and Khandelwal (2018), Salleh et al. (2019), and Yap and Ng (2018)
3	Down Payment	Soon and Tan (2019)
4	Government Subsidy	Lamsali et al. (2020) and Thaker and Sakaran (2016)
5	Monthly Instalment and Loan Terms	Bujang et al (2015), Ismail et al (2015), and Yap and Ng (2018)
6	Resale Value	Hardy et al (2018)
7	Maintenance Cost	Salzman and Zwinkels (2013) and Hurtubia, Gallay, and Bierlaire (2010)
	General Attribute	
8	Exterior Aesthetic	Cetintahra and Cubukcu (2014), Farasa and Kusuma (2018), Haddad, Judeh, and Haddad (2011), Hurtubia, Gallay, and Bierlaire (2010), Majid, Said, and Daud (2012), Opoku and Abdul-Muhmin (2010), and Salleh et al. (2015)
9	Material Quality	Chia et.al (2016), Chong and Dastane (2017), Masri, Nawawi, and Sipan (2016), Salleh et al. (2019), and Sundrani et al (2019)
10	Housing Age and Condition	Hurtubia, Gallay, and Bierlaire (2010), Mariadas, Abdullah, and Abdullah (2016), Moghimi and Jusan (2015), Mulliner and Algrnas (2018), and Tan (2011)
11	Housing Size	Farasa and Kusuma (2018), Lamsali et al. (2020), Mariadas, Abdullah, and Abdullah (2016), Owusu-Manu et al (2019), and Thaker and Sakaran (2016)
12	Number of Bedrooms and bathrooms	Chia et.al (2016), Hurtubia, Gallay, and Bierlaire (2010), Kumar and Khandelwal (2018), Opoku and Abdul-Muhmin (2010), and Soon and Tan (2019)
13	Number of Parking Lot	Hurtubia, Gallay, and Bierlaire (2010) and Lamsali et al. (2020)
14	Land Ownership	San (2016), Tan (2011), and Yap and Ng (2018)
15	Developer Reputation	Chia et.al (2016), Razak et al (2013), and Salleh et al. (2019)

Table 2.1 (Cont'd)

No.	Influencing Factor	Previous Studies
16	Housing View	Farasa and Kusuma (2018), Ismail and Shaari (2019), Kumar and Khandelwal (2018), Salleh et al. (2015), and Tan (2011)
17	Feng Shui	Kumar and Khandelwal (2018), Salleh et al. (2015), and Tan (2012)
	Accessibility Attributes	
18	Accessibility to Recreational Facilities	Owusu-Manu et al (2019), Soon and Tan (2019), Sundrani et al (2019), and Thaker and Sakaran (2016)
19	Accessibility to Workplace	Hurtubia, Gallay, and Bierlaire (2010) and Soon and Tan (2019)
20	Accessibility to Education Institution	Hurtubia, Gallay, and Bierlaire (2010), Jun (2013), Mulliner and Algrnas (2018), Soon and Tan (2019), and Tan (2012)
21	Accessibility to Medical Facilities	Ismail and Shaari (2019), Masri, Nawawi, and Sipan (2016), and Mulliner and Algrnas (2018)
22	Accessibility to Public Transport	Haddad, Judeh, and Haddad (2011), Hurtubia, Gallay, and Bierlaire (2010), Jun (2013), Mulliner and Algrnas (2018), Owusu-Manu et al (2019), and Salleh et al. (2015)
23	Accessibility to Groceries Market	Lee (2012), Sundrani et al (2019), and Tan (2011)
24	Accessibility to Religious Institution	Saruwono, Rashdi, and Osmar (2012), Thanaraju et al (2019), and Yuhaniz and Jusan (2016)
	Neighbourhood Attribute	
25	Community Density	Hurtubia, Gallay, and Bierlaire (2010), Jun (2013), and Usavagovitwong et al (2013)
26	Pollution	Chia et.al (2016), Kumar and Khandelwal (2018), Opoku and Abdul-Muhmin (2010), Owusu-Manu et al (2019), and Thaker and Sakaran (2016)
27	Criminality and Security	Farasa and Kusuma (2018), Hurtubia, Gallay, and Bierlaire (2010), Lamsali et al. (2020), Sundrani et al (2019), and Thaker and Sakaran (2016)
28	Sense of Community	Aluko (2011), Salleh et al. (2015), and Zhang and Lim (2012)

2.3.1 Financial Attributes

The financial attributes are economic and monetary aspects that are involved before the purchase of housing, which includes the interest rate, loan facilities, down payment, government subsidy, monthly instalment and loan terms, resale value, and maintenance cost.

2.3.1.1 Interest Rate

Loan or mortgage are borrowings of capital from the bank by an individual, in return, the payment of borrowing has to be paid along with a surcharge of interest. Yap and Ng (2018) found that a portion of interviewees generally agreed that the interest rate of the loan significantly influence their decision of purchasing housing, as a higher interest rate would mean that household will have to pay a higher amount of loan instalment each month.

The interest rate of the loan offered by the commercial bank is partly influenced by the base lending rate (BLR) impose by the Central Bank. Hence, the fluctuation of interest rate is market sensitive and especially vulnerable to first-time homebuyers as they do not have substantial disposal income to accommodate the likely increase in their monthly instalment (Kurniawan et al., 2020). Other studies had also found the association of interest rate in influencing the purchasing decision of housing (Mariadas, Abdullah and Abdullah, 2016; Salleh et al., 2019; Thaker and Sakaran, 2016).

2.3.1.2 Loan Facilities

Loan facilities refer to the amount of financing obtained by house purchasers and the tendency of commercial banks in approving the application of borrowing (Salleh et al., 2019). Kumar and Khandelwal (2018) found that the availability of home loans is one of the most influential financial factors by house purchasers besides the price of housing.

However, Ng (2019) reported that the loan approval rate has become tighter, which lowered down to 71.3% and the loan-to-value (LTV) ratio has been reduced to 70% for the purchase of a third dwelling by the Central Bank of Malaysia since 2010. Yap and Ng (2018) encouraged that individuals should maintain a responsible financial track record and discouraged house purchasers

to default in payment of the debt, be it the debts of credit card, utility bill, or mortgage payment. That way, house purchasers should be able to secure a loan easily in this strict environment.

2.3.1.3 Down Payment

To show faithfulness in their intention of purchasing a house, a sum of downpayment is required to be paid by the housing purchaser before payment is fully reimbursed by a bank loan. Down payment usually, at the lowest, demands 10 per cent of the housing price which may cost a fortune for ordinary house purchasers. One of the obvious signs that down payment represents an obstacle for homeownership is the approval of the Employees Provident Fund (EPF) for withdrawing retirement savings to place the down payment (EPF, 2021).

Although there are offers from the developer that required no down payment, it would usually translate to a heavier financial burden from higher monthly instalment, higher mortgage insurance, and longer loan duration. Soon and Tan (2019) noticed that majority of the first time house purchaser does not have the ability to pay the down payment. Hence, the huge sum of down payment of housing is another factor heavily considered by house purchasers.

2.3.1.4 Government Subsidy

In the effort to deplete the overhang of property and increase the rate of homeownership, various housing schemes were introduced such as PR1MA, RUMAWIP, MYHOME, RUMAH SELANGORKU, etc, by the government to subsidise partial or fully for the price of affordable housing within the housing scheme. The beneficiary is targeted at households whose average incomes are categorised within the low and middle-income groups. According to Thaker and Sakaran (2016) and Lamsali et al (2020), the most important factor that influences the purchase of residential property is pricing. Hence, with control house pricing and provision of financial aid, affordable housing may be purchased by low and middle-income households without incurring any financial burden. Although the scheme looks promising, the take-up rate was

low (Kathy, 2019). Mazlan (2016) urges that the government seriously look into the housing loan scheme, rent-to-buy scheme, and down payment assistance.

2.3.1.5 Monthly Instalment and Loan Terms

As housing will be the largest asset to be purchased by household, it is often difficult and unwise to purchase with savings. The household may loan from the bank but repay it thereafter in the terms of monthly. At this point, it is clear that the ability to repay the housing instalment is determined by the housing price and household income (Yap and Ng, 2018). The monthly instalment has been perceived by Gen Y as one of the most influential factors when purchasing housing (Bujang et al, 2015).

Despite that the amount of monthly instalment will be largely determined by the housing price, it does not mean that households with lower income will not be able to obtain loan facilities and purchase housing. They may apply for a loan with a longer duration, lowering the amount of repayment for each month, however, with a higher interest rate in total. However, Ismail et al (2015) revealed that bumiputra in Malaysia struggles to finance the monthly instalment due to its short-term loan.

2.3.1.6 Resale Value

Despite the affordability that the affordable housing scheme provided, house purchasers are faced with a moratorium period, which they can neither sell nor rent within this period, imposed by the government. The implementation of the condition was to control the fluctuation of the price for affordable housing by preventing speculators from buying and reselling within a short term (Surendran, 2017). The state government will take punitive action under the Strata Management Regulation 2015 against house purchaser who fails to comply with the terms and condition (TheSundaily, 2019). However, the restriction has brought a backlash to the scheme. The symptoms can be observed from the only 12.8% out of 189,892 applicants that successful in owning the affordable house (Selangorkini, 2019).

The duration for holding the asset is too long such as the MyHome and PR1MA housing scheme which has 10 years of selling restriction. While the

selling price is also being capped at RM300,000, diminish the opportunity for house purchasers in recovering the interest expense, let alone profit. Hardy et al (2018) have identified that one of the risks considered by house purchasers when selecting a property is the ability to recover the acquisition cost. Hence, this study explores the influences of housing resale value in housing purchaser's purchasing decisions.

2.3.1.7 Maintenance Cost

As the land of Klang Valley increasingly developed, the availability of land in the urban area is increasingly scarce. Hence, the development of affordable housing in Klang Valley are compelled to develop high-rise building such as condominium, apartment, and flat. The phenomenon can be seen through the latest housing scheme available in Klang Valley which includes, PRIMA, Selangorku, RUMAWIP, and MyHome. These types of strata residential property are usually managed by the homeowners association which is a self-governing association where residents pay fees monthly to maintain the neighbourhood. The maintenance fees may not be significant, and it is often excluded in the calculation of housing cost (Salzman and Zwinkles, 2013). However, Hurtubia, Gallay, and Bierlaire (2010) stated that there are households that are willing to live in a smaller house for a reduced maintenance cost.

2.3.2 General Attributes

The general attribute discussed in this study generally refers to the feature and physical attributes of a house, which includes aspects such as housing quality, built-up area, number of bedrooms and bathroom, sport and social facilities, and accessibility to convenience. Without the consideration of location, the attributes and structure of the house are found to be important factors that influence house purchasers and directly determine the market price (Owusu-Manu et.al, 2019).

2.3.2.1 Exterior Aesthetic

Exterior aesthetic refers to the exterior finishing and design of the housing. Often, developers regard the house design as the prominent feature of a

development to attract house purchasers (Majid, Said, and Daud, 2012). Farasa and Kusuma (2018) uncovered that young adults in India appreciate housing that is simply designed. Whereas house purchasers in Malaysia would prefer innovative and elegant design disregarding the class of house (Majid, Said, and Daud, 2012). However, it is reported that housing design is often secondary to financial factors as the satisfaction and contentment of the aesthetic of housing are difficult to be quantified (Hurtubia, Gallay, and Bierlaire, 2010).

Dwellings with the aesthetic design are found to be pleasant, arousing, and creating excitement in the state of mind (Cetintahra and Cubukcu, 2014). Other studies have reported that the design of the house is a significant determinant of the influence of the purchaser's decision (Opuku and Abdul-Muhmin, 2010; Haddad, Judeh, and Haddad, 2011). This may be explained by the social status that the housing will represent with great design (Salleh et.al, 2015).

2.3.2.2 Material Quality

The building quality of Malaysia's housing has been improving over time due to the advancement of technology and demand from house purchasers (Chong and Dastane, 2017). As the quality of the building has slowly become aware among housing purchasers, the standard of physical attributes of such as the quality of finishing, craftsmanship, and materials used in the construction of housing will be one of the main aspects that influence house purchaser's decision (Masri, Nawawi, and Sipan, 2016). It is stated by Chia et al. (2016) that construction quality has a significant relationship with the intention of purchasing a house in Malaysia. While Salleh et al (2019) also found that the influence of quality of material used is only second to the neighbourhood attributes of the housing when purchasing housing. Interestingly, it is revealed that the house purchasers made consideration of the developer's reputation when determining the quality of the dwelling (Sundrani, 2017).

2.3.2.3 Housing Size

Housing size refers to the total area of the property which generally includes the built-up area, yard, green area, and car porch. It is found that the housing size is

another dominant factor in influencing the house purchaser's purchasing decision (Lamsali et al., 2020; Thaker and Sakaran, 2016). Owusu-Manu et al. (2019) found that house purchasers do not mind paying the extra in return for a spacious and useable space. Farasa and Kusuma (2018) reported that respondents would opt for bigger housing to provide the growing family with sufficient space for their hobbies and family activities.

Although larger areas would equal more living space, there are certain demographic of house purchasers who still prefer a smaller area of dwellings as it is easier to be managed and they do not require much space to utilise in their daily lives (Farasa and Kusuma, 2018). Still, it is undeniable that owning a house in a large area usually indicates a higher social status and symbol in a subtle manner (Mariadas, Abdullah, and Abdullah, 2016).

2.3.2.4 Number of Bedroom and Bathroom

The number of bedrooms and bathrooms refers to the rooms available to accommodate the size of family members and guests. These intrinsic attributes of housing were commonly defined by the researcher as factors that influence a house purchaser's preference (Opoku and Abdul-Muhmin, 2010; Kumar and Khandelwal, 2018). Soon and Tan (2019) explained that the number of bedrooms is usually a factor considered by the larger household or married couple. An adequate supply of bedrooms allows the household to possess certain privacy while living under the same roof with other family members (Hurtubia, Gallay, and Bierlaire, 2010). In contrast, Chia et al. (2016) revealed that the number of bedrooms and bathroom do not influence house purchasers in Kota Kinabalu, Malaysia significantly. This might either due to the distinction of needs and demand due to their cultural aspect, or the product that was being offered in the market is adequately suited to the local needs.

2.3.2.5 Number of Parking Lot

Affordable housing in Malaysia is usually provided with one parking lot for each unit. However, the current public transport system is limited, so the household has grown to be highly dependent on the use of the private car. Hence, parking spaces are one of the growing demands on the structural attributes of

housing (Lamsali et al, 2020). On the contrary, the number of parking lots has been rated as the least influencing attribute in Saudi which may be due to its lacking effective parking policy and management (Mulliner and Algrnas, 2018). Hurtubia et al (2010) suggested that housing with more parking lots in Europe appear to be much attractive to house purchaser than the United State due to its high neighbourhood density and smaller housing units.

2.3.2.6 Land Ownership

There are two types of land ownership, freehold, and leasehold. The owner of housing with freehold tenure is entitled to the land as far as it may concerns the freehold land lies with the titleholder until it is transferred to purchasers. Whereas leasehold land has to revert to the state government upon reaching the expiration period unless the leasing term is renewed. Tan (2011) and San (2016) discovered that freehold land is much desirable to house purchasers than leasehold land. This may be due to the high premium incurred when renewing the term of leasehold land (Yap and Ng, 2018). Hence, this study explores the difference in land ownership in influencing the purchasing decision of house purchasers.

2.3.2.7 Developer's Reputation

The reputation and brand of the property developer are intertwined with its product; hence they often had to heavily advertise their brand and build up good images by consistently delivering good quality real estate products. When house purchasers are introduced to developers with less knowledge of their brand, they will actively seek out profiles and information to reduce brand ambiguity. Razak et al (2013) concluded that the image of property developers generally has a good influence on house purchaser's decision making. However, Chia et al (2016) discovered that house purchasers in Kota Kinabalu, Malaysia do not have great brand consciousness, and they would instead focus on the products and features offered by the developer. The result concurred with Salleh et al (2019) findings that house purchaser focuses on the performance of the developer rather than its brand image.

2.3.2.8 Housing Age and Condition

The common perception of old housing is the association of depreciated physical attributes, which lowers the value of the housing as it is less attractive to house purchasers. Choosing newer housing will be a rational decision as less maintenance work will have to be carried out in the future. The result established by Mulliner and Algrnas (2018) and Tan (2011) affirms the impression that the age of housing has a negative relationship to its attractiveness. However, Hurtubia, Gallay, and Bierlaire (2010) found that the negative relationship does not apply to Europe, though sometimes older housing can be more attractive.

Undoubtedly, the condition of the house can be represented by its age. Moghimi and Jusan (2015) revealed that the physical looks and housing conditions can be often determined by the age of the property. It is reported that house purchasers would prefer houses that are newly developed as less maintenance and deterioration of house services such as pipe leak, malfunctioning of electronic appliances, energy inefficient, etc are needed on new houses (Mariadas, Abdullah and Abdullah, 2019). These maintenance costs may add up to a substantial amount, for that reason, buying a new house may warrant the house purchasers in avoiding the hassle.

2.3.2.9 Housing View

Since the view of housing is highly dependent on the surrounding environment, each housing will have its unique view of the scenery. Tan (2011) identified that house purchasers are willing to pay extra money for housing with good environmental qualities. The studies by Salleh et al (2015) and Kumar and Khandelwal (2018) have revealed that a good view from housing is influential in purchasing decisions as it is often associated with good ventilation. A similar study has been done by Ismail and Shaari (2019) and Farasa and Kusuma (2018), they have identified that the view from housing is especially important to young adults. As young adults are prioritising lifestyle even more than the previous generation, it is expected that the view of housing will be much influential than before.

2.3.2.10 Feng Shui

Feng shui is a traditional Chinese concept that aims to ensure harmony between humans and their surrounding environment. Feng represents wind while Shui represents water. It is believed that utilising and controlling the energy of wind and water will bring good health and fortune to households (Salleh et al, 2015). Tan (2012) has found that house purchasers generally prefer housing with good feng shui. This factor is especially apparent in the lifestyle and settlement patterns of the Chinese community. The concept of feng shui also influences house purchasers who do not believe it as houses with bad feng shui might affect their resale value (Kumar and Khandelwal, 2018). Hence, this study defined feng shui as the arrangement of bedrooms and bathrooms which are in line with the practices of feng shui in directing energy to harmonise with a human.

2.3.3 Accessibility Attributes

Accessibility attributes are often regarded highly by housing purchasers as housing located at a prime location provides convenience to the household which may potentially bring saving on time cost. A prime location is usually perceived by house purchasers as a location that allowed them to access facilities such as recreational facilities, workplaces, education facilities, medical facilities, public transport, groceries market, and religious institution conveniently.

2.3.3.1 Accessibility to Recreational Facilities

Recreational facilities are environmental features of housing such as recreational parks, sports facilities, clubhouses, etc. It is reported that house purchaser tends to favour housing property that is located nearby to a recreational park (Thaker and Sakaran, 2016). It is discovered that the house purchaser rated this attribute as important as being close to public transportation (Soon and Tan, 2019). The housing that is adjacent to public amenities is also recorded to have increased in value due to higher demand (Owusu-Manu et al., 2019). These public amenities are a potential opportunity for communities to socialise and interconnect with each other. In the competitive market of property, developers often seek ways to enhance their market competitiveness over that development of similar location and design by offering various amenities such

as swimming pools, recreational parks, sporting facilities, etc, even when it means that the cost has to be bear by their own (Sundrani, 2017).

2.3.3.2 Accessibility to Workplace

Accessibility to the workplace refers to the proximity of housing to the central business district. Soon and Tan (2019) revealed that unmarried young adults prefer housing that is close to the workplace in order to save time spent travelling. Whereas single working people prefer housing located in urban areas with ease of access to a job opportunity (Hurtubia, Gallay, and Bierlaire, 2010). A survey from Bank Negara Malaysia (2017) showed that the locations of some affordable housing projects are unattractive due to the long distance from the workplace. However, housing located close to the business district is often associated with traffic congestion especially during peak hours, which may ultimately decrease the housing value. Hence, housing has to be located at a strategic location, where the house purchaser may tolerate the middle point between heavy traffic and its distance away from the workplace.

2.3.3.3 Accessibility to Education Facilities

Houses located near to school should be particularly relevant to households with children (Soon and Tan, 2019). This is because parents would drop children off the school and immediately head to work. Hence, it will be much convenient, in terms of transportation, that housing is located near the school or workplace. Tan's (2012) result coincides with the result from Soon and Tan (2019) that married households generally prefer housing that is located near the school. It is believed that housing located near to a quality school is more important than the number of schools (Hurtubia, Gallay, and Bierlaire, 2010). This explains why houses around quality schools charge a premium on the rent (Jun, 2013). However, a contrasting result from Mulliner and Algrnas (2018) is obtained as Saudi house purchasers and property practitioners rank the attributes fairly low.

2.3.3.4 Accessibility to Medical Facilities

The rapid urbanisation has led to the development of the unplanned settlement, which lacks complete public services including hospitals (Mulliner and Algrnas, 2018). Ismail and Shaari (2019) identified that housing location with ease of

access to health care facilities is a great pull factor, attracting households to stay in the current housing. The same has been argued by Masri, Nawawi, and Sipan (2016) that accessibility to the hospital is one of the main indicators of a quality location. It is expected that housing located near medical facilities will be rated highly by households with families.

2.3.3.5 Accessibility to Public Transportation

Access to public transportation has been regarded highly by households (Haddad, Judeh, and Haddad, 2011; Jun, 2013; Salleh et al, 2015). With access to public transportation, the household will no longer need to pay premiums to live and work within the central urban area. Instead, households will be given alternatives to live in satellite cities and commute to work via any form of public transport. The distance to public transport is correlated with measurement to other assessment of facilities (Hurtubia, Gallay, and Bierlaire, 2010), making it a deciding attribute before considering any other accessibility to convenience. Hence, with consideration of the convenience that public transportation brings, house purchasers are willing to pay a premium for houses located close to public transport (Owusu-Manu, 2019).

For European cities, which have great public transportation systems and few parking spaces available, access to public transportation has become a necessary attribute in housing (Hurtubia, Gallay, and Bierlaire, 2010). In contrast, this attribute is not as attractive as other places in Saudi where limited services of public transport are established (Mulliner and Algrnas, 2018). Hence, this study explores the influences of accessibility to public transport on house purchaser's decisions.

2.3.3.6 Accessibility to Groceries Market

With the spur of urbanisation in towns and cities, housing in an urban area is inherited with the advantage of assessing services and facilities supporting the daily needs and activities of the households, such as the ease of access to groceries market and shops. In the research by Lee (2012), accessibility to food shopping is regarded highly by house purchasers, there has been a positive relationship between the house price and the level of convenience in the

neighbourhood. Tan (2011) had also defined housing with good locational attributes are housing with proximity to local amenities. This may be due to the reason that house purchasers are less interested to spend their time travelling.

2.3.3.7 Accessibility to Religious Institution

Malaysia is a country that takes great pride in being the only country that houses various religions while maintaining harmonious co-existence between its citizens. The religious institution is required to allow the conduction of prayers. However, with the rapid urbanisation and the changes in the lifestyle of the younger generation, the religious institution has become less important than other housing attributes. However, the accessibility to a religious institution is still relevant to the Malay communities in Malaysia as five prayers are required to perform by Muslims each day (Yuhaniz and Jusan, 2016). Hence, it is identified that house purchasers would select housing that is located close to places that may ease their conduct of religious prayer (Thanaraju et al, 2019). Without the accessibility to a religious institution, some Muslims have sacrificed housing space to a prayer room (Saruwono, Rashdi, and Osmar, 2012).

2.3.4 Neighbourhood Attributes

In addition to accessibility attributes, neighbourhood attributes are other locational dependant factors that influence house purchasers purchasing decisions. Neighbourhood attributes are externalities of housing that influence extensively on a household once they are settled in specific geographical units where they conduct their daily activities. A household that shares the same neighbourhood will share the same social characteristics such as community density, environmental pollution, criminality and security, and sense of community.

2.3.4.1 Community Density

Community density is defined as the number of people living in the neighbourhood. A household with higher income prefers to live in an area with a lower population or employment density (Jun, 2013). However, the area with lower density does not necessarily translate to higher satisfaction. Usavagovitwong et al. (2013) discovered that settlements with adequate house

sizes that are designed to facilitate neighbourly interaction show higher satisfaction levels than an unimproved settlement with lower community density. On the contrary, Hurtubia, Gallay, and Bierlaine (2010) found that locations with a higher density are often much attractive to house purchasers in Europe as it associates with ease of access to amenities and services.

2.3.4.2 Pollution

Pollution in this study refers to various negative externalities of housing that will disrupt the enjoyment of comfort of house purchasers, such as air pollution, noise pollution, and light pollution. Often, a neighbourhood is evaluated by house purchasers based on environmental factors such as pollution and cleanliness (Thaker and Sakaran, 2016; Opoku and Abdul-Muhmin, 2010; Kumar and Khandelwal, 2018).

House purchasers will value the environment surrounding housing as they prefer living in an area where they can enjoy a peaceful life (Chia et al., 2016). Environment pollutions that primarily concern house purchaser are air pollution and noise pollution. These pollutions are commonly generated from industry activity, urbanisation, highway, or an airport. Owusu-Manu et al. (2019) explained that a neighbourhood that is located around the airport is highly exposed to the negative effect of noise.

2.3.4.3 Criminality and Security

Criminality and security refer to the concern of the safety of the surrounding neighbourhood where the house is located. Previous findings have indicated that the security and safeties of a neighbourhood are another main consideration by house purchasers (Farasa and Kusuma, 2018; Hurtubia, Gallay, and Bierlaire, 2010). Sundrani (2017) explained that rampant crime is a barrier for house purchasers from choosing the neighbourhood. Although a gated and guarded neighbourhood often indicates a higher cost as the installation of closed-circuit television and employment of security guard are financed by household themselves. However, households are willing to pay for the premium in exchange for peace of mind (Thaker and Sakaran, 2016, Lamsali et al., 2020).

Other than that, a guarded housing is commonly seen as higher social status, satisfying the house purchaser's fascination for differentiation.

2.3.4.4 Sense of Community

As a social animal, human prefers to be lived under a community, maintaining a relationship with neighbours who live within an area of the territorial and geographical notion. McMillian and Chavis (1986) defined the psychological sense of community as a feeling of attachment and belonging to the community. Hence, a sense of community evaluates the degree of social closeness between neighbours. It is revealed that places with a great community are likely to be promoted by real estate companies as the environment is much desirable by house purchasers (Salleh et al, 2015).

A sign of a bonded community is the little things such as the ability to identify and participate in the affairs of neighbours. However, the specialisation and segmentation of urban life have disrupted the opportunity for face-to-face communication between neighbours (Aluko, 2011). While Zhang and Lin (2012) stated that a gated community will have higher belongingness among the community, however, that comes at the cost of community affection.

2.4 The Influence of Social Demographic in Purchasing Affordable Housing

With the variance of preferences, it is important to identify the behavioural, social, and psychological characteristics of its setting (Kumar and Khandelwal, 2018). This study is intended to establish the connection between the socio-demographic of house purchasers and purchasing affordable housing preferences. The result will be beneficial to both house purchasers and housing developers as housing can be tailored to fulfil the specific demand of the market. Therefore, the relationship between the social demographic of house purchasers and affordable housing purchasing preferences is explored in this study to assess the differences of each social demographic respondent in their preferences of housing.

Majid, Said, and Daud (2012) and Haddad, Judeh, and Haddad (2011) discovered that demographic factors such as gender, marital, ethnicity,

education level, and employment status of a house purchaser will influence their preferences when purchasing a housing unit. For example, Yuhaniz and Jusan's (2016) study has shown that Malay housewives have great influence over the design of housing particularly the size and colour of the kitchen where spaces they utilise most. While households with children would prefer to stay in that is close to both the school and the workplace (Saw and Tan, 2014). Furthermore, Majid, Said, and Daud (2012) revealed that there is a significant difference between gender in the preferences of general attribute and the surrounding environment of the housing.

Other than that, the larger household was concerned about the number of bedrooms (Soon and Tan, 2019). Moreover, the ages of house purchasers play a role in the preferences of housing as well, as is shown in the study by Ismail and Shaari (2019) that Baby Boomers and Gen-Y chooses a neighbourhood while Gen-Z chooses the view from housing as the most important attribute of housing. Besides, ethnicity group or race is another aspect of socio-economy that influences the choice of selection in the attribute of housing. As different ethnicity has its own unique culture and perspectives (Adam, 2018), their ethnicity background will drive their preferences in housing. The differences are revealed by Majid, Said, and Daud (2012) in their choice of the surrounding environment of housing.

Furthermore, Majid, Said, and Daud (2012) explained that the demographic characteristic will influence the behaviour of house purchaser which would encourage them to choose a house that will satisfy their own need. Besides, it is also a common practice by other industry such as the furniture retailer to design the furniture tailored to the lifestyle of their consumers (Awang, Soltani, and Hajabbasi, 2012). Hence, in the investigation of preferences of house purchaser, the influence of the social demographic characteristic of the house purchaser on the purchasing decision should also be studied.

2.5 Summary of findings from literature reviews

The literature of relevant studies was reviewed and a list of factors influencing the house purchasers in purchasing affordable housing was identified. Figure 2.2 illustrates the summary of key findings from the literature review. A total of four main attributes are discovered that will influence affordable housing purchaser's purchasing decisions, which are financial, general, accessibility, and neighbourhood attributes. Besides, a total of 32 factors has been identified under those attributes. The four attributes and 32 factors have been identified and supported by researchers as factors that will influence the house purchaser’s decision. Besides, the figure also illustrated the influence of the social demographic of house purchasers in the purchasing preference of affordable housing attribute.

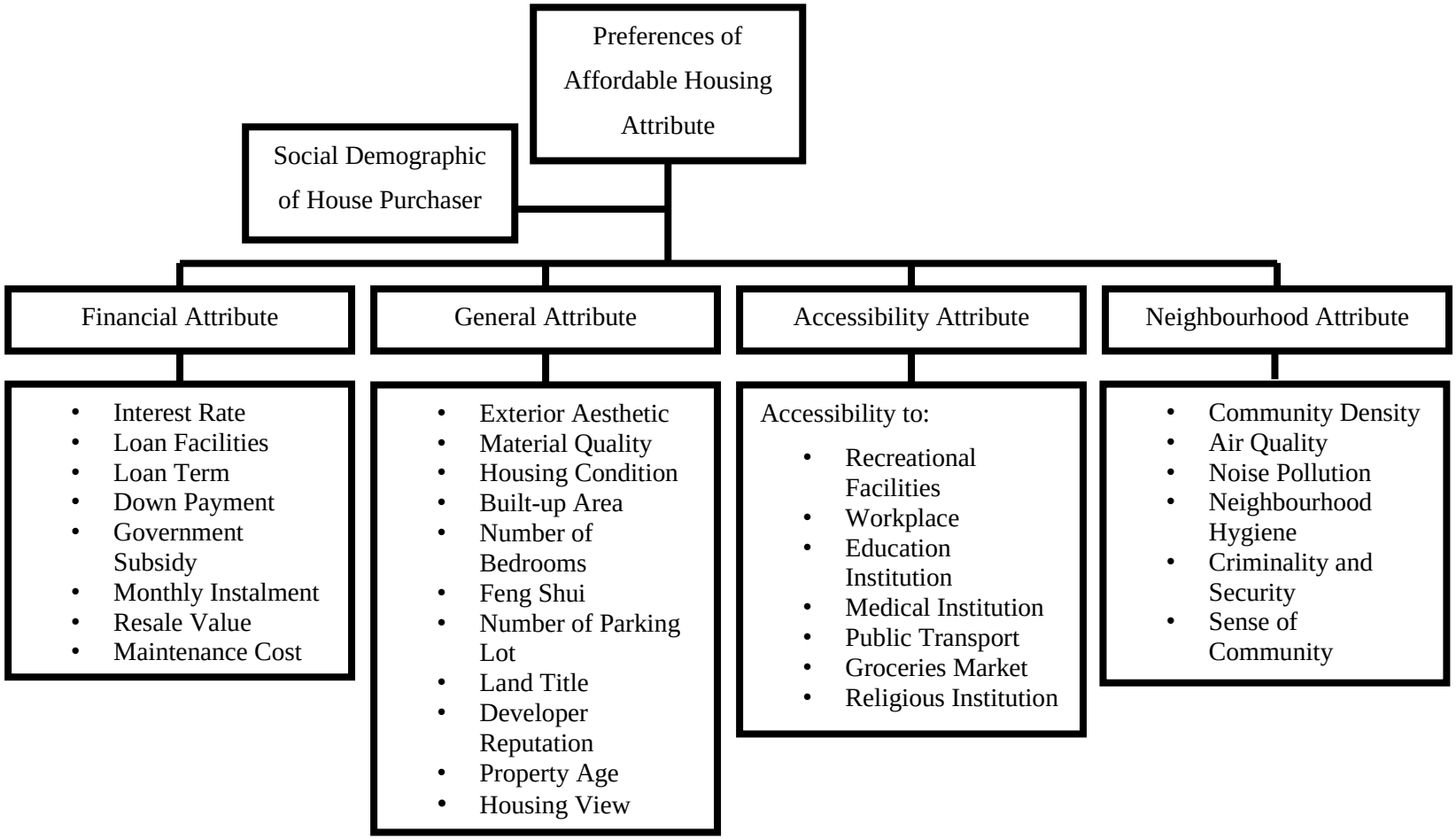

Figure 2.1: Summary of Key Findings from Literature Reviews

2.6 Conclusion

To sum up, this chapter has emphasised the importance of understanding the preference of house purchasers and identified the attributes influencing their purchasing decision. Besides, each attribute that influences the house purchaser's purchasing decision were explained in detail. This chapter ended with a summary of key findings that will influence house purchaser's purchasing decisions.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the approach of the research method and explained the selection of the research approach used. Besides, this chapter also explains the design of this study and the process of literature review. Moreover, the sampling approach, method of data collection, design of questionnaire survey, and data analysis method are explained in detail at the end of this.

3.2 Research Methodology

Research can be defined as a process to enhance knowledge of a particular issue or topic by employing steps to collect and analyse information (Creswell, 2011). Whereas research methodology is referring to the method or approach used to collect and analyse empirical data.

Generally, research can be conducted in three approaches, which are qualitative, quantitative, and mixed-method. The adoption of the type of research approach entirely depends on the nature of the research topic as each approach has its strength and limitation. Hence, it is important to ensure the appropriate selection of research methods as it dictates the research design and type of data collected.

3.2.1 Quantitative Research Approach

Quantitative research, which may also be called postpositivist research, is an approach that is often adopted by the researcher to test, verify, or refined a theory that is of knowledge (Creswell, 2011). The quantitative research approach often begins with a preconceived idea or theory, gathers data that are either supporting or opposing the theory, then makes necessary refinement for the next conduct of research (Creswell, 2002). In other words, the quantitative research approach studies the relationships or causal effects of specific variables by quantifying them. Hence, a measurement that reveals the relationship of variables is a critical component in quantitative research.

The strength of quantitative research is by emphasising numeric in analysed data, such statistical data which are calculated and produced by analytical software greatly reduces the time and resources a researcher must invest. Furthermore, the research result which supports the hypotheses obtain from quantitative research are certain, specific, and predictable (Muijs, 2004). Thus, the research findings may be generalised, in which the findings of one study are applicable to another (Mertens, 2009).

On the other hand, Daniel (2016) described that quantitative researchers are playing the role of observer, which they detached themselves from the participant. Such practice by the researcher will prevent them from obtaining an in-depth knowledge of the phenomenon being studied. Besides, the participants were approaches with a specific and narrow question, giving no room for the participant to contribute to the study. The research variable represented with numeric data is dehumanising, limiting the expression of opinion and mind of the participant (Lune and Berg, 2012).

3.2.2 Qualitative Research Approach

Qualitative research, which may be called social constructivism, is a research approach to understand the interpretation of participants on the research issue. Rather than having a preconceived theory, the researcher generates or develops an introductory theory or meaning (Neuman, 2014). To obtain the opinion, views, and experience of the participant, qualitative researchers tend to use open-ended questions to encourage participants to express themselves broadly and generously (Yin, 2011).

The strength of qualitative research is that several medians of conducting research such as in-depth interviews and open-ended questions are available to be employed, which allowed the researcher to gather data from participants in their natural settings. Furthermore, qualitative research collects non-numerical data such as case studies, personal experiences, interviews, etc., which is best suited for providing contextual and descriptive information. However, due to the descriptive data collected from the participant, such non-numerical data in qualitative research are difficult to be summarised

and simplify (Daniel, 2016). Hence, qualitative researchers tend to impose explanations on the findings and observation based on their interpretation of the social world which a different researcher may have a different interpretation (Daniel, 2016). Other than that, due to its inability to generalised, it is difficult to verify the statement and achieve a consistent finding, resulting in questionable reliability and validity of their research findings.

3.3 Justification of selection

The quantitative research method was selected as an appropriate research approach to achieve the research objectives. This research is intended to uncover the factors influencing the purchasing of affordable housings by house purchasers that sets out the requirements of housing purchasers in selecting and purchasing affordable housing. Hence, information in breath from a large pool of participants is needed to achieve an accurate finding. To obtain a large number of responses, the use of a questionnaire, which is the main feature of quantitative research in the strategy of inquiry, will be the ideal approach for this study. Besides, this study solely explores the variables that are defined before the distribution of the questionnaire, narrowing the outcome and obtain specific research results are preferable, allowing the generalisation of the preferences of the population. Hence, with all the characteristics being mentioned, the quantitative method will be an appropriate approach to achieve the research objective for this study.

On the other hand, the qualitative method will be a less appropriate approach to be adopted in this research. This is due that qualitative research emphasises in-depth individual opinions and views to understand the phenomenon. Besides, the findings of the qualitative method are presented descriptively, and unexpected variables may emerge. However, qualitative research is much suitable to address research problems when the variables are unknown to the researcher and are needed to be explored. It is also used when an answer is needed for a question that required experience, meaning, and perspective from the point of view of the respondent (Hammarberg, Kirkman, and de Lacey, 2016). Hence, this study that sought after factual data to answer

a known and unambiguous problem is much suitable to adopt the quantitative method.

3.4 Research Design

The research process of this research consisted of a total of seven phases. The purpose of each phase is defined and explained in detail. The research topic and research problem were identified in **phase 1.** A research topic is a general subject addressed in this study, whereas research problems are the general concerns that drive the need to conduct the study. In **phase 2** of the research, a review of the literature was conducted by reference to conference papers, journal articles, books, newspaper, and government documents. While in **phase 3** of the study, the problem statement, research aim, and three objectives that clarify the intention of this study were specified.

The **fourth phase** of the research is the determination of sampling. This step identified the individual, the size of the sample, and the location to be studied. Although there are various sampling techniques in quantitative research, this research employed the purposive sampling approach, where only B40 (RM4,850 and below) and M40 (RM4,851 – RM10,959) were targeted as stated in the research scope. The **fifth phase** is the collection of data. Often, quantitative research only uses a single research instrument to gather data. This research has selected questionnaire surveys as a means to collect data and it was distributed through email and social application.

After a considerable amount of data were collected, the data was analysed in **phase six**. The data was analysed by using analytical computer software to generate numerical data that were tested with a few tests to verify its validity and legitimacy. While the last phase of the study, as known as the **seventh phase,** was report writing. The research report presented a summary of the entire research which includes the introduction to the research topic, findings of the studies and limitation encountered.

3.5 Literature Review

Before the conduct of the literature review, the research topic is identified. A literature review is generally defined as a summary of the previous and current

state of information on the area of the research being studied. It is a summary based on the reference of the journal article, books, newspaper, conference paper, and government document. The primary purpose of conducting a literature review was to examine and address the research problem of this study that was not demonstrated and studied in the previous research. It is also used to justify the importance and major purpose of the study, answering how this research may add to the existing literature.

There were five steps in conducting a literature review for this research. First of all, the key terms of the research were identified. For this research, the key term was “housing preference”, “housing attribute”, “factors influence house buyer”, etc. These keywords have served as an aid to locate relevant literature from the library or database such as Elsevier and ScienceDirect in the next step. Then, the literature was evaluated to determine its quality and relevancy to the topic of this research. The literature was then screen through to identify the position of the study in the overall literature and a literature map that assist in the understanding of the key issues and literature findings was developed, referring to Figure 2.1. The literature review was then written with reference to the study identified in the discussion of influencing factor when purchasing affordable housing.

3.6 Quantitative Data Collection

A questionnaire was designed for this research. The primary advantage of the questionnaire is that it is familiar to both the researcher and the participant. The participant was also at their convenient to think through before answering the questionnaire, a guarantee on the quality of data collected.

3.6.1 Questionnaire Design

There are a few areas that were taken into consideration in the design of questionnaire. Firstly, the information required such as the research objective in the framing of the questionnaire must be understood to ensure that the questionnaire is designed to draw information that will fulfil the research objectives (Sreejesh, Mohapatra, and Anusree, 2014). Besides, the question should be organised in a structured manner and not be lengthy as to maintain

their attention and interest in answering the questionnaire. Other than that, words should articulate with care to ensure the respondent comprehends the question as intended.

Generally, two types of questions can be formulated in a questionnaire, mainly an open-ended question and a close-ended question. An open-ended question which is also called an infinite response allows the respondent to explain and describe their opinion with their own words without being restricted to a pre-defined response. Whereas a close-ended question restricts the respondent to answer to a predefined response option. The close-ended structured question was chosen to present the questionnaire of this study. Although it restrained the respondent from giving a rounded answer, it provides convenience to the researcher in analysing the data (Cakir and Cengiz, 2016).

The questionnaire for this research consisted of two sections. The first section, was designed to obtain the demographic details of the respondent, such as age, marital status, monthly household income level, etc. Whereas the second section served to evaluate the factors that influence the house purchaser when purchasing affordable housing. There was a total of 4 main attributes and 32 factors to be evaluated by the respondents. The influence of factors on the house purchaser was measured using the five-point Likert scale which includes not important, less important, moderately important, very important, and extremely important. A questionnaire sample is attached in Appendix.

3.6.2 Sampling determination

Collecting data from all of the population requires a considerable amount of effort and unfeasible in terms of resources. Hence, sampling is needed to determine the number of cases needed to represent the whole population. Sampling is defined by Creswell (2020) to identify a small set of cases from a larger pool of a population. The primary use of a sample in quantitative studies is to create a representative sample that closely represents the feature of interest of the larger population (Neuman, 2014). Sampling is a crucial part of research as sloppy or improper sampling will yield data that will seriously misrepresent the features of the population.

This research targeted individual who resides in Klang Valley and whose income falls under B40 (RM4,850 and below) and M40 (RM4,851 – RM10,959) under the income classification. According to the Department of Statistic Malaysia (DOSM, 2020), there is around 8,3241,000 population in Klang Valley. However, investigating all individuals in the population will be unfeasible. Hence, the Cochran formula is employed to calculate the acceptable sample size that will inference the population.

Cochran's formula is computed as Equation 3.1 (Stephanie, 2018):

$$n = \frac{z^2 pq}{e^2} \tag{3.1}$$

Where,

n = sample size

z = the z-scores of the desired confidence level

p = the proportion of the population with attributes understudy

q = 1 – p

e = Margin of error

The general rule for an acceptable margin of error that follows by many research fields such as, management, social study, education, etc, uses a 95% of confidence level, which translates to 5% of margins of error (Bonett and Wright, 2014). Hence, with a 95% of confidence level, this research will have a z-scores of 1.96. The DOSM did not specify the exact population for group B40 (RM4,850 and below) and M40 (RM4,851 – RM10,959) in Klang Valley, hence, it is assumed that it will be 80% of the total population according to the normal distribution of the income classification. Hence, the values of p will be 0.8 whereas the value of q will be 0.2. Therefore, the sample size calculated using the Cochran formula will be 246 individuals.

However, to create a smaller while accurately representing the sample with mathematically predictable errors, Central Limit Theorem (CLT) can be applied. The CLT establishes that when the sample size becomes larger, an approximately normal distribution will occur in the distribution of sample means which are identical in size (Ganti, 2019). It is discovered by Kwak and

Kim (2017) as the degree of freedom grows larger, the mean of all samples is observed to be proximate of the normal distribution, provided that it came from the same population. Although there has been a mathematical proven on the size of the sample, researchers generally agreed that a sample size of thirty (30) or more is sufficient to represent the approximately normal distribution (Rumsey, 2009; Kwak and Kim, 2017; Ganti, 2019). Hence, a sample size of thirty (30) is determined for each group of the sample under the investigation of affordable housing preferences.

While sampling technique can be generally divided into two categories, mainly probability sampling and non-probability sampling. Although the purposive sampling technique from non-probability sampling is widely adopted by qualitative research, it is the most suitable for this study as it selects participant based on a specific need or purpose which allow the researcher to yield the most relevant and plentiful data (Edmonds and Kennedy, 2017). The selection of purposive sampling, however, does not necessarily suggest a random selection of participants which is typically found in quantitative research (Creswell, 2020). Instead, the participants are selected based on the research objective, in which this study specifically targeted participants from income classification of B40 (RM4,850 and below) and M40 (RM4,851 – RM10,959).

3.6.3 Questionnaire distribution

The questionnaire was designed using Google Forms. The questionnaire was then distributed to targeted respondents (B40 and M40) through email and social media. Since the rise of the internet, online surveys have become increasingly popular as such an approach gives the researcher several advantages which simplifying the process of data and uses little or no cost to complete the data collection process (Zhang et al., 2017).

Other than that, the researcher does not have to be present, and the respondent does not feel the pressure to answer immediately, ample time was given to the respondent to think thoroughly before answering the question. Although the use of online surveys still involves a certain degree of bias due to

the access to the internet is still distorted by age and education (Blasius and Brandt, 2010), it is observed that the result obtained is still the same as offline and paper surveys (Dodou and de Winter, 2014). The questionnaire was distributed from Jan 2021 to March 2021, a total of 60 days.

3.7 Data analysis

For this study, Statistical Package for the Social Science (SPSS) software was used to perform data analysis. While several tests were identified and chosen to be carried out in this research such as Cronbach's Alpha Reliability Test, Arithmetic Mean, Mann-Whitney U Test, and Kruskal-Wallis Test.

3.7.1 Cronbach Alpha Reliability Test

Cronbach alpha is used to verify the internal consistency of the data and it is often used to describe the reliability of a sum of measurement which may be presented by a questionnaire (Bonett and Wright, 2014). The internal consistency test should be done before other tests can be employed for this study to ensure the validity of the result.

The result of the test is presented as a number between 0 and 1. While a high value does not equivalent to a unidimensional measure. However, a high value obtained from the reliability test would mean that the test score has a lower error (Tavakol and Dennick, 2011). A low value would indicate that the measurement is not measuring the data of the research objective. Table 3.1 explains the result obtain from performing the Cronbach Alpha reliability test.

Table 3.1: Rule of Thumb for results (Source: Stephanie, 2016)

Cronbach Alpha's	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

3.7.2 Arithmetic Mean

The arithmetic mean is one of the most commonly adopted measures of central tendency in the field of mathematical and statistics. The central tendency can be

defined as a measure that identifies a single value that represents the entire distribution (Manikandan, 2011).

The formula given for arithmetic mean is:

$$\bar{x} = \frac{\sum x}{n} \quad (3.2)$$

Where,

$\bar{x}$ = Mean of an item,

$\sum x$ = Sum of an item,

n = Total number of observations.

This study has employed the use of arithmetic means in the measure of central tendency of each factor that influences house purchasers. The mean result is then ranked accordingly to explore the weight of each factor ranked by the respondent. The arithmetic mean is determined by the sum of all values in the data set divided by the number of values in the data set.

3.7.3 Mann-Whitney U Test

The Mann-Whitney U test is a non-parametric technique that is used to compare two independent groups on a continuous variable (McKnight & Najab, 2010). However, there are a few assumptions to be met before the Mann-Whitney U test can be applied. That is each observation can only be counted once (Milenovic, 2011). In other words, each observation should not appear in more than one category or group and the data referred should not affect the data of others (Milenovic, 2011).

The formula given for the Mann-Whitney U test is:

$$U = R - \frac{n(n+1)}{2} \quad (3.3)$$

Where,

U = U statistic,

R = Sum of ranks in the sample,

n = Number of items in the sample.

In this study, the dependent variable would be “factors influencing house purchaser’s decision”, whereas the independent variable would be different social demographics of housing purchasers such as “gender”, “age”, “education level”, “marital status”, and “income level”. The null hypothesis and alternative hypothesis are formulated:

Null hypothesis (H_0): There is no significant difference across the social demographic of house purchasers on the preferences of purchasing affordable housing.
Alternative hypothesis (H_1): There is a significant difference across the social demographic of housing purchasers on the preferences of purchasing affordable housing.

3.7.4 Kruskal-Wallis Test

The Kruskal-Wallis test is a non-parametric test that is generally used to compare more than two independent samples whether each group originated from a population of the same distribution. However, a few assumptions are made when using the Kruskal-Wallis test. It assumes that the sample was selected from the population randomly and independently and that each group of samples is observed from the population with the same normal distribution (Ostertagova, Ostertag, and Kovac, 2014).

The formula used to calculate the H-value is shown below (Stephanie, 2016):

$$H = \left[\frac{12}{n(n-1)}\sum_{j-1}^{c}\frac{T_j^2}{n_j}\right] - 3(n-1) \qquad (3.4)$$

Where:
n = sum of sample sizes for all samples,
c = number of samples,
T_j = sum of ranks in the j^{th} sample,
n_j = size of the j^{th} sample.

The h-value obtained from the calculation is then used to compare with the critical chi-square value. The null hypothesis (H_0) will be rejected if the

critical chi-square value is less than the h-value. Vice versa, the null hypothesis will be failed to reject if the critical chi-square value is not less than the h-value. The critical chi-square value can be obtained by referring to the degree of freedom and the p-value in the chi-square in Table 3.2.

Table 3.2: Chi-square Table (Source: Beyer, 2017)

Degree of Freedom	**P-value**			
	0.10	**0.05**	**0.025**	**0.01**
1	2.706	3.841	5.024	6.635
2	4.605	5.991	7.378	9.210
3	6.251	7.815	9.348	11.345
4	7.779	9.488	11.143	13.277
5	9.236	11.070	12.832	15.086
6	10.645	12.592	14.449	16.812

The Kruskal-Wallis test is selected in this study to analyse the data and evaluate according to the preferences of different races of house purchasers. Hence, the independent variables in this study are three groups of ethnicities, which include Malay, Chinese, and Indian. The null hypothesis (H_0) represents no significant difference between the groups. While the alternative hypothesis (H_1) represents a significant difference between the groups. There are two hypotheses formulated to determine the significant difference between the type of as below:

Null hypothesis (H_0): There is no significant difference across the ethnicity of house purchasers on the preferences of purchasing affordable housing.
Alternative hypothesis (H_1): There is a significant difference across the ethnicity of housing purchasers on the preferences of purchasing affordable housing.

3.8 Summary of Chapter

In conclusion, this research employed the quantitative method as it is advantageous in achieving the research objective. The participant was selected by purposive sampling technique and the data will be collected by using the questionnaire survey. The data collected were analysed using analytical computer software. While Cronbach's Alpha reliability test, Arithmetic Mean, Mann-Whitney U Test, and Kruskal-Wallis Test were employed to determine

the correlation of data with the research objective. The result from the analysis was justified with the previous study in the following chapter.

CHAPTER 4

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents and discusses the analysed data of the factors influencing the house purchaser when purchasing affordable housing. The summary of the demographic background of the respondent collected is presented first. Then, Cronbach's Alpha Reliability Test is performed to verify the internal consistency of the data. Next, the preferences of the affordable house are rank and tabulated based on the mean value which is determined by carrying out arithmetic mean. Besides, Mann-Whitney U Test and Kruskal-Wallis Test are carried out to identify the significant differences in preferences of affordable housing between respondent of different demographic groups.

4.2 Demographics of Respondents

Questionnaire has been distributed to the residence of Klang Valley through email and social platform. There were 122 sets of questionnaires returned, of which, 2 sets were respondents from income classification of T20 and 1 were below the age of 21 years old. Thus, the remaining 119 sets of questionnaires were included for analysis. The data collected from the survey are tabulated as presented in Table 4.1.

Table 4.1: Demographic Details of 119 Returned Survey

Demographic Details	Frequency (n)	Percentage (%)
Gender		
Male	57	47.9
Female	62	52.1
Ethnicity		
Malay	31	26.1
Chinese	58	48.7
Indian	30	25.2
Age Group		
21 – 30 years old	64	53.8
31 – 40 years old	21	17.6
41 – 50 years old	15	12.6
51 – 60 years old	17	14.3
61 years old and above	2	1.7

Table 4.1 (Cont'd)

Demographic Details	Frequency (n)	Percentage (%)
Marital Status		
Single	54	45.5
Married	56	47.1
Divorced	5	4.2
Widowed	4	3.4
Number of Children (Married)		
0	6	5.0
1	9	7.6
2	18	15.1
3	15	12.6
More than 3	8	6.7
Education Level		
SPM	19	16.0
STPM	6	5.0
Diploma	26	21.8
Advance Diploma	2	1.7
Foundation	1	0.8
Bachelor's Degree	61	51.3
Master's Degree	4	3.4
Doctorate	0	0
Employment Sector		
Private Sector	85	71.4
Public Sector	7	5.9
Self-employed	14	11.8
Unemployed	13	10.9
Income		
RM4,850 and below (B40)	79	66.4
RM4,851 – RM10,959 (M40)	40	33.6
Ownership of Affordable Housing		
None	80	67.2
1	29	24.4
Above 1	10	8.4
Purchase Intention within 5 years		
Not all Likely	30	25.2
Slightly Likely	22	18.5
Moderately Likely	19	16.0
Very Likely	27	22.7
Completely Likely	21	17.6
Reasonable Price Range of Affordable Housing		
RM150,000 and below	15	12.6
RM150,001 – RM200,000	19	16.0
RM200,001 – RM250,000	18	15.1
RM250,001 – RM300,000	29	24.4
RM300,001 – RM350,000	16	13.4
RM350,001 – RM400,000	22	18.5

Table 4.1 tabulated the respondents' demographic in the form of frequencies and percentages. Based on Table 4.1, there are 57 male respondents and 62 female respondents. Besides, there are 31 Malay respondents, 58 Chinese respondents, and 30 Indian respondents. In terms of age, 53.8% of the respondents are under the age group of 21 to 30 years old, followed by 17.6% from the age group of 31 to 40 years old. Respondents from the age group of 41 to 50 years old and 51 to 60 years old have a frequency of 12.6% and 14.3%, respectively. The lowest frequency of age group is 61 years old and above, which only have a frequency of 1.7%. In terms of marital status, 54 respondents are still single, 56 respondents are married, 5 respondents are divorced, and 4 respondents are widowed. Of the 56 married respondents, 6 have no children; 9 have one child; 18 have 2 children; 15 have 3 children, while 8 have more than 3 children.

In terms of education level, 19 respondents obtained SPM certification; 6 respondents obtained STPM certificate; 26 respondents obtained diploma certificate; 2 respondents with advanced diploma certificate; and 1 respondent obtained foundation certificate. On the other hand, 61 respondents with bachelor's degree holder, and only 4 respondents are master's degree holder. Apart from the education level, the income level of the respondent was also investigated. 66.4% of the respondents were earning RM4,850 and below, while the rest of the respondents 33.36% were earning between RM4,851 to RM10,959.

After the demographic information of the respondent was collected, they were asked if they possess any affordable housing currently. 80 respondents do not own any affordable housing, while 29 respondents own one affordable housing, and 10 respondents own more than one affordable housing. In the investigation of their intention in purchasing affordable housing in the next 5 years, 30 respondents are not all likely to purchase; 22 respondents are less likely to purchase; 19 respondents are moderately likely to purchase. Whereas only 27 respondents are very likely, and 21 respondents are completely likely to make a purchase.

4.3 Cronbach's Alpha Reliability Test

The Cronbach's Alpha Reliability Test is carried out to determine the reliability of the 119 responses on the 32 influencing factors in purchasing affordable housing. Table 4.2 shows the result of the reliability test.

Table 4. 2: Reliability Statistics of Attribute of Affordable House Preference

Cronbach Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
0.930	0.929	32

As presented in Table 4.2, the result of the reliability test exceeded the acceptable value of 0.70. According to Stephanie (2016), a score of more than 0.70 would generally mean a high relation of the items in the test. The Cronbach's Alpha value of 0.930 is considered excellent in internal consistency. Hence, the data is reliable to proceed with further analysis.

4.4 Arithmetic Mean of Factors Influencing Purchasing of Affordable House

Table 4.3 illustrated the codes for main attributes and each influencing factor when purchasing affordable housings. There are 4 main attributes of affordable housing and 32 influencing factors. The code "A" represents the financial attribute, "B" represents the general attribute, "C" represents the accessibility attribute, and "D" represents the neighbourhood attribute. While each factor was given a numeric number on top of the code corresponding to each main attribute.

Table 4.3: Code and Factors Influencing Purchasing of Affordable Housing

Attribute	**Code**	**Factors Influencing Purchasing of Affordable House**
Financial Attribute	A	
	A1	Interest Rate
	A2	Loan Facilities
	A3	Loan Term
	A4	Down Payment
	A5	Government Subsidy
	A6	Monthly Instalment
	A7	Resale Value
	A8	Maintenance Cost

Table 4.3 (Cont'd)

Attribute	Code	Factors Influencing Purchasing of Affordable House
General Attribute	B	
	B1	Exterior Aesthetic
	B2	Material Quality
	B3	Housing Condition
	B4	Built-up Area
	B5	Number of Bedrooms
	B6	Feng Shui
	B7	Number of Parking Lot
	B8	Land Ownership
	B9	Developer Reputation
	B10	Property Age
	B11	Housing View
Accessibility Attribute	C	
	C1	Accessibility to Recreational Facilities
	C2	Accessibility to Workplace
	C3	Accessibility to Education Facilities
	C4	Accessibility to Medical Facilities
	C5	Accessibility to Public Transport
	C6	Accessibility to Groceries Market
	C7	Accessibility to Religious Institution
Neighbourhood Attribute	D	
	D1	Community Density
	D2	Air Quality
	D3	Noise Pollution
	D4	Neighbourhood Hygiene
	D5	Criminality and Security
	D6	Sense of Community

4.4.1 Mean Ranking of Attribute of Affordable Housing Preference

The overall mean ranking of the main attribute of affordable housing preference is examined and compared. Table 4.4 presents the overall mean ranking of the main attributes of affordable housing preferences evaluated by potential affordable housing purchaser. The attribute with the highest mean score represented as the attribute that has a strong influence on the purchasing decision of affordable housing.

Table 4.4: Overall Mean Ranking of Attribute of Affordable House Preference

Code	Attributes of Affordable House	Mean	Ranking
A	Financial Attribute	4.16	1
B	General Attribute	3.80	2
D	Neighbourhood Attribute	3.79	3
C	Accessibility Attribute	3.49	4

According to Table 4.4, the “financial attribute” (A) has the highest mean scores of 4.16 followed by “general attributes” (B) with a mean score of 3.80. It can be observed that the respondents generally agreed that the financial attribute is the most influential attribute when purchasing affordable housing. According to Saw and Tan (2014), the financial attribute was usually looked at highly because housing has the lowest liquidity among all the other assets, and it requires a great amount of initial capital. Besides, only when it is reasonable in the evaluation of financial attribute, only will the house purchaser move further to understand more about the housing and potentially making a purchase (Lamsali et al, 2020). While Kumar and Khandelwal (2018) also suggested that the financial or economic related factors were ranked highly by housing purchaser only to be followed by the general attribute.

On the other hand, the lowest mean ranking attribute is the “accessibility attribute” (C) with a mean value of 3.49. This result has gone against the norm of the result obtained from similar studies, such as studies from Chong and Dastane (2017) and Saw and Tan (2014) which discovered that Malaysian house purchasers generally prioritised accessibility attribute. However, Opoku and Abdul-Muhmin (2010) found that low-income house purchaser from Saudi Arabia prioritised accessibility attribute lesser than other attributes as putting a roof on top of their head is more important than the location of the house. It can be observed from the result obtained that the accessibility attribute is less prioritise by Malaysia’s house purchaser from B40 and M40 as compared to other attributes when purchasing affordable housing.

4.4.2 Mean Ranking of Factors Influencing Purchasing of Affordable House

The means of 32 influencing factors when purchasing affordable housing are ranked and tabulated in Table 4.5. The factors with a higher mean value would imply that it has more influence and were considered more than the other factors with lower mean value by housing purchaser before purchasing affordable housing.

Table 4.5: Mean Ranking of Factors of Affordable House Preference

Code	Factors Influencing Purchasing of Affordable House	Mean	Ranking
B3	Housing Condition	4.34	1
A2	Loan Facilities	4.33	2
A1	Interest Rate	4.28	3
A6	Monthly Instalment	4.26	4
A3	Loan Term	4.18	5
D5	Criminality and Security	4.14	6
A4	Down Payment	4.13	7
B8	Land Ownership	4.07	8
A7	Resale Value	4.03	9
D3	Noise Pollution	4.02	10
D2	Air Quality	3.99	11
A8	Maintenance Cost	3.97	12
C2	Accessibility to Workplace	3.97	12
D4	Neighbourhood Hygiene	3.97	12
B4	Built-up Area	3.95	15
A5	Government Subsidy	3.91	16
B5	Number of Bedrooms	3.86	17
C6	Accessibility to Groceries Market	3.85	18
C5	Accessibility to Public Transport	3.82	19
B10	Property Age	3.76	20
C4	Accessibility to Medical Facilities	3.74	21
B2	Material Quality	3.71	22
B9	Developer Reputation	3.71	22
B7	Number of Parking Lot	3.70	24
B11	Housing View	3.65	25
B6	Feng Shui	3.51	26
B1	Exterior Aesthetic	3.50	27
D1	Community Density	3.39	28
C3	Accessibility to Education Facilities	3.30	29
D6	Sense of Community	3.24	30
C1	Accessibility to Recreational Facilities	3.13	31
C7	Accessibility to Religious Institution	2.64	32

According to Table 4.5, the factors that have the highest mean ranking is **B3** = "Housing Condition" under the attribute of "general attribute" with a mean value of 4.34. This has indicated that the house purchaser would highly prioritise the condition of housing. The house purchaser would usually take extra caution on the condition of housing when the housing was handover by the housing developer, especially any possible leakage of pipe, malfunctioning of services, cracks or poor finishes, etc. Any defects or faulty workmanship of housing were to be reported to the housing developers within the defect liability

period (DLP) to repair it at the cost of the housing developer. If the defects were not reported within the DLP, it would mean that more maintenance or repair work is needed which may associate with more cost in the future (Mulliner and Algrnas, 2018). The result obtained is consistent with Aluko's (2011) study where house purchaser from Lagos, Nigeria ranked structural condition highly as well.

The second highest mean ranking is **A2** = "Loan Facilities" under the attribute of "Financial Attribute" with a mean value of 4.33. Based on the result, the "Loan Facilities" have been highly prioritised by the B40 and M40 house purchaser in Malaysia. It is generally perceived by house purchaser that a down payment is the only cost of purchasing housing and the availability of housing loan will dictate their initial cost of purchase (Chong and Dastane, 2017). The studies by Chong and Dastane (2017) and Ishak, Yakub, and Achu (2019) had obtained similar result where loan availability is the key factor when purchasing housing, especially for the lower and medium-income group.

The third highest mean ranking is **A1** = "Interest Rate" under the attribute of "Financial Attribute" with a mean value of 4.28. It can be observed that "Interest Rate" is another financial attribute (A) that highly prioritised by the B40 and M40 house purchaser in Malaysia. The high interest rate would mean a higher instalment that the house purchaser must pay monthly, which increases the cost of the housing loan (Yap and Ng, 2018). Although the high interest rate will greatly influence the cost of monthly instalment and may potentially harm the financial healthiness of the house purchaser, it will still be a concern second to the loan facility. This is because the availability to obtain a housing loan is still the main issue for house purchaser, which is especially true to house purchaser of lower-income (Chong and Dastane, 2017). The result was similar to the conclusion by Kurniawan et al. (2020) and Salleh et al. (2019) where the interest rate was ranked highly by house purchaser in influencing the purchasing decision.

On the other hand, the least and the second-least prioritised influencing factor of purchase of affordable housing by house purchaser are **C7** =

"Accessibility to Religious Institution" with a mean value of 2.64 and **C1** = "Accessibility to Recreational Facilities" with a mean value of 3.13. Both influencing factors are under the attribute of "Accessibility Attribute". The study has shown that house purchaser from B40 and M40 in Malaysia less prioritise the accessibility to the religious institution and recreational facilities. However, Thaker and Sakaran (2016) and Soon and Tan (2019) had revealed that Malaysia's house purchaser generally prioritises locational factors highly, especially housing that is close to recreational facilities. Similarly, Kurniawan et al. (2020) and Farasa and Kusuma (2018) investigated the house purchaser preferences in Indonesia has also shown the opposite result where the accessibility attribute (C) was generally ranked highly by house purchaser.

The third least influencing factor of affordable housing attribute that is less prioritise by house purchaser is **D6** = "Sense of Community" under the attribute of "Neighbourhood Attribute" with a mean value of 3.24. This result revealed that B40 and M40 in Malaysia do not prioritise the sense of community during the purchase of affordable housing. On the other hand, Saw and Tan (2019) had revealed that prioritise by house purchaser that neighbourhood is as important as criminality and security, which is not consistent with the result that is obtained by this study.

4.5 Mann-Whitney U Test

Mann Whitney U test is used to identify the significant difference across gender, age, marital status, income level, and education level on the preferences of affordable housing. A p-value of 0.05 is adopted in this test.

4.5.1 Mann-Whitney U Test on Gender

Two hypotheses are generated for this test as below:

Null hypothesis (H_0): There is no significant difference across the gender of house purchasers on the preferences of purchasing affordable housing.

Alternative hypothesis (H_1): There is a significant difference across the gender of housing purchasers on the preferences of purchasing affordable housing.

Table 4.6: Mann-Whitney U Test on Gender

Code	Factors Influencing Purchasing of Affordable House	Mann-Whitney U	Wilcoxon W	Asymp. Sig. (2-tailed)
C2	Accessibility to Workplace	1412	3065	.047

Table 4.6 shows the result of the Mann-Whitney U test based on the different gender on their preferences of affordable housing. The test has revealed that there is only one item of influencing factor that shows significant differences across gender, which is item **C2** = "Accessibility to Workplace". The p-value of influencing factor **C2** is less than 0.05 while the rest of the influencing factor has a p-value of greater than 0.05. Therefore, the null hypothesis (H_0) is rejected for **C2**.

Table 4.7: Mean Rank of Factors Influencing Purchasing of Affordable House across Gender

Code	Factors Influencing Purchasing of Affordable House	Respondent	N	Mean Rank	Sum of Rank
C2	Accessibility to Workplace	Male	57	53.77	3065.00
		Female	**62**	**65.73**	**4075.00**

Note: **Bold** indicates the highest mean rank

As depicted in Table 4.7, the mean rank of accessibility to workplace for the female house purchasers is 65.73, which is higher than the mean rank of the male house purchaser at 53.77. This has indicated that the female house purchaser generally prefers housing that is located near to their workplace. Haddad et al. (2011) had also concluded that there are significant differences in the preferences of housing attribute by male and female house purchaser. Commonly, the house purchaser would consider staying at housing where it is close to the workplace as it will bring saving in terms of time. However, this study revealed that female house purchaser would have a higher mean ranking than male house purchaser in the preference of accessibility to the workplace as the attitude of the community on female were expected to contribute more

towards the household. According to Yuhaniz and Jusan (2016), the tide has changed when the female was able to be educated and participating in economic activities. Hence, a rising preference for housing that is close to the workplace from female house purchaser.

4.5.2 Mann-Whitney U Test on Age

The demographic respondent collected for the age group of "31 – 40 years old", "41 years old – 50 years old", "51 – 60 years old", and "61 years old and above" were grouped as "31 years old and above" to fulfil the criteria of the Central Limit Theorem (CLT) where each group of the sample under investigation must have a sample size equal or greater than 30 to exhibit a normal distribution similar to the population. Hence, the difference of respondent for the age group of "21 – 30 years old" and "31 years old and above" were investigated.

Two hypotheses are generated for this test as below:

Null hypothesis (H_0): There is no significant difference between the age of house purchasers on the preferences of purchasing affordable housing.

Alternative hypothesis (H_1): There is a significant difference between the age of housing purchasers on the preferences of purchasing affordable housing.

Table 4.8: Mann-Whitney U Test on Age

Code	Factors Influencing Purchasing of Affordable House	Mann-Whitney U	Wilcoxon W	Asymp. Sig. (2-tailed)
B3	Housing Condition	1209	2749	.001
C1	Accessibility to Recreational Facilities	1392	2932	.040
C4	Accessibility to Medical Facilities	1369	2909	.029
C5	Accessibility to Public Transport	1271	2811	.007
C6	Accessibility to Groceries	1332	2872	.016
D2	Market Air Quality	1341	2881	.018
D3	Noise Pollution	1363	2903	.024
D4	Neighbourhood Hygiene	1179	2719	.001
D5	Criminality and Security	1284	2824	.006

According to Table 4.8, nine influencing factors were revealed to have a p-value that is less than 0.05. The nine factors are **B3** = "Housing Condition", **C1** = "Accessibility Recreational Facilities", **C4** = "Accessibility to Medical Facilities", **C5** = "Accessibility to Public Transport", **C6** = "Accessibility to Groceries Market", **D2** = "Air Quality", **D3** = "Noise Pollution", **D4** = "Neighbourhood Hygiene", **D5** = "Criminality and Security". The result has indicated that there is a significant difference between the age group of "21 – 30 years old" and "31 years old and above". Hence, the null hypothesis (H_0) is rejected for these nine factors.

Table 4.9: Mean Rank of Factors Influencing Purchasing of Affordable House across Age

Code	Factors of Affordable House Preference	Respondent	N	Mean Rank	Sum of Rank
B3	Housing Condition	**21 – 30 years old**	**64**	**68.61**	**4391.00**
		31 years old and above	55	49.98	2749.00
C1	Accessibility to Recreational Facilities	**21 – 30 years old**	**64**	**65.75**	**4208.00**
		31 years old and above	55	53.31	2932.00
C4	Accessibility to Medical Facilities	**21 – 30 years old**	**64**	**66.11**	**4231.00**
		31 years old and above	55	52.89	2909.00
C5	Accessibility to Public Transport	**21 – 30 years old**	**64**	**67.64**	**4329.00**
		31 years old and above	55	51.11	2811.00
C6	Accessibility to Groceries Market	**21 – 30 years old**	**64**	**66.69**	**4268.00**
		31 years old and above	55	52.22	2872.00
D2	Air Quality	**21 – 30 years old**	**64**	**66.55**	**4259.00**
		31 years old and above	55	52.38	2881.00
D3	Noise Pollution	**21 – 30 years old**	**64**	**66.20**	**4237.00**
		31 years old and above	55	52.78	2903.00
D4	Neighbourhood Hygiene	**21 – 30 years old**	**64**	**69.07**	**4420.50**
		31 years old and above	55	49.45	2719.50
D5	Criminality and Security	**21 – 30 years old**	**64**	**67.43**	**4315.50**
		31 years old and above	55	51.35	2824.50

Note: **Bold** indicates the highest mean rank

From Table 4.9, the result may be observed that the respondent from the age group of "21 – 30 years old" have a higher mean ranking in every factor that is of significant difference. The result indicated that the younger house purchaser has a higher expectation and much particular in terms of the housing attribute than those of age group above 31 years old. This is especially true in terms of accessibility attribute (C) and neighbourhood attribute (D). According to Ismail and Shaari (2019), it is an important decision for the younger house purchaser as they are first-time house purchaser and also freshly started a household. While Majid, Said, and Daud (2012) revealed that house purchaser that is age under 30 years old are less likely to purchase housing as they hardly reached the financial stability to finance the commitment. Hence, the younger house purchasers would rather purchase the housing that suits their preferences in terms of accessibility attribute and neighbourhood attribute.

In terms of accessibility attribute, the younger house purchaser especially just graduated may not have the financial capability to own a private vehicle. Hence, it is reasonable that they had preferred housing that is close to various facilities, especially accessibility to public transport which allow the house purchaser to close the gap of other facilities that are further away. The younger house purchaser also has higher preferences in terms of the neighbourhood due to the increasing trend of concern in environmental sustainability nowadays, which is especially true for European countries (Hurtubia, Gallay, and Bierlaire, 2010).

4.5.3 Mann-Whitney U Test on Marital Status

Two hypotheses are formulated as below:

Null hypothesis (H_0): There is no significant difference between the single and married house purchasers on the preferences of purchasing affordable housing.

Alternative hypothesis (H_1): There is a significant difference between the single and married house purchasers on the preferences of purchasing affordable housing.

Table 4.10: Mann-Whitney U Test on Marital Status

Code	Factors Influencing Purchasing of Affordable House	Mann-Whitney U	Wilcoxon W	Asymp. Sig. (2-tailed)
B3	Housing Condition	1174	2770	.019
C4	Accessibility to Medical Facilities	1166	2762	.031
C5	Accessibility to Public Transport	917	2513	.001
C6	Accessibility to Groceries Market	1130	2726	.016
C7	Accessibility to Religious Institution	1181	2666	.042
D2	Air Quality	1190	2786	.040
D3	Noise Pollution	1180	2776	.033
D4	Neighbourhood Hygiene	1050	2646	.003

According to Table 4.10, eight influencing factors were revealed to have a p-value that is less than 0.05. The eight factors are **B3** = "Housing Condition", **C4** = "Accessibility to Medical Facilities", **C5** = "Accessibility to Public Transport", **C6** = "Accessibility to Groceries Market", **C7** = "Accessibility to Religious Institution", **D2** = "Air Quality", **D3** = "Noise Pollution", and **D4** = "Neighbourhood Hygiene". The result has indicated that there is a significant difference between the house purchaser that are single and married. Hence, the null hypothesis (H_0) is rejected for these eight factors.

Table 4.11: Mean Rank of Factors Influencing Purchasing of Affordable House across Marital Status

Code	Factors Influencing Purchasing of Affordable House	Respondent	N	Mean Rank	Sum of Rank
B3	Housing Condition	**Single**	**54**	**61.76**	**3335.00**
		Married	56	49.46	2770.00
C4	Accessibility to Medical Facilities	**Single**	**54**	**61.90**	**3342.50**
		Married	56	49.33	2762.50
C5	Accessibility to Public Transport	**Single**	**54**	**66.52**	**3592.00**
		Married	56	44.88	2513.00
C6	Accessibility to Groceries Market	**Single**	**54**	**62.57**	**3379.00**
		Married	56	48.68	2726.00

Table 4.11 (Cont'd)

Code	Factors Influencing Purchasing of Affordable House	Respondent	N	Mean Rank	Sum of Rank
C7	Accessibility to Religious Institution	Single	54	49.38	2666.50
		Married	**56**	**61.40**	**3438.50**
D2	Air Quality	**Single**	**54**	**61.46**	**3319.00**
		Married	56	49.75	2786.00
D3	Noise Pollution	**Single**	**54**	**61.65**	**3329.00**
		Married	56	49.57	2776.00
D4	Neighbourhood Hygiene	**Single**	**54**	**64.05**	**3458.50**
		Married	56	47.26	2646.50

Note: **Bold** indicates the highest mean rank

Referring to Table 4.11, the most obvious significant difference between single house purchaser and married house purchaser on the influencing factors are accessibility attribute (C) and neighbourhood attribute (D). Aside from housing condition where single house purchaser would generally avoid as it meant trouble and inconvenience in arranging repair work without having family members around, single house purchaser is having higher preferences on locational factor and neighbourhood factor. Married house purchaser, however, had a higher preference for housing that is located close to the religious institution. According to Opoku and Abdul-Muhmin (2010), a married household would prefer housing within a good location where children have a good environment in the process of growing up. Hence, a neighbourhood that is surrounding the religious institution is often to have decent neighbours and environment.

In terms of accessibility attribute, single house purchaser generally prefers housing that is located where facilities are convenient to be reached. Whereas married household prefers housing that is located outskirt and away from urban area (Kumar and Khandelwal, 2018). Mariadas, Abdullah, and Abdullah (2016) also discovered that married household prefers housing that is surrounded with the natural environment. Due to the preference of housing location, single house purchaser had also paid more attention to environmental qualities of the neighbourhood more than married house purchaser who need not concerned on the same issue as housing located at outskirt are generally have better environmental qualities than the housing located at urban area.

4.5.4 Mann-Whitney U Test on Income Level

Two hypotheses are generated for this test as below:

Null hypothesis (H_0): There is no significant difference between the B40 (RM4,850 and below) and M40 (RM4,851 – RM10,959) house purchasers on the preferences of purchasing affordable housing.

Alternative hypothesis (H_1): There is a significant difference between the B40 (RM4,850 and below) and M40 (RM4,851 – RM10,959) house purchasers on the preferences of purchasing affordable housing.

Table 4.12: Mann-Whitney U Test on Income Level

Code	Factors Influencing Purchasing of Affordable House	Mann-Whitney U	Wilcoxon W	Asymp. Sig. (2-tailed)
A7	Resale Value	2130	2950	.001
B4	Built-up Area	1974	2794	.019
B5	Number of Bedrooms	2152	2972	.001
B6	Feng Shui	2069	2889	.004
B7	Number of Parking Lot	2148	2968	.001
B9	Developer Reputation	1998	2818	.014
B11	Housing View	1997	2817	.015

According to Table 4.12, there are seven influencing factors that were revealed to have a p-value that is less than 0.05. The seven factors are **A7** = "Resale Value", **B4** = "Built-up Area", **B5** = "Number of Bedrooms", **B6 =** "Feng Shui", **B7** = "Number of Parking Lot", **B9** = "Developer Reputation", and **B11** = "Housing View". The result has indicated that there is a significant difference between the house purchaser from B40 (RM4,850 and below) and M40 (RM4,851 – RM 10,959). Hence, the null hypothesis (H_0) is rejected for these seven factors.

Table 4.13: Mean Rank of Factors Influencing Purchasing of Affordable House across Income Level

Code	Factors Influencing Purchasing of Affordable House	Respondent	N	Mean Rank	Sum of Rank
A7	Resale Value	RM4,850 and below (B40)	79	53.04	4190.00
		RM4,851 – RM 10,959 (M40)	**40**	**73.75**	**2950.00**
B4	Built-up Area	RM4,850 and below (B40)	79	55.01	4346.00
		RM4,851 – RM 10,959 (M40)	**40**	**69.85**	**2794.00**
B5	Number of Bedrooms	RM4,850 and below (B40)	79	52.75	4167.50
		RM4,851 – RM 10,959 (M40)	**40**	**74.31**	**2972.50**
B6	Feng Shui	RM4,850 and below (B40)	79	53.80	4250.50
		RM4,851 – RM 10,959 (M40)	**40**	**72.24**	**2889.50**
B7	Number of Parking Lot	RM4,850 and below (B40)	79	52.80	4171.50
		RM4,851 – RM 10,959 (M40)	**40**	**74.21**	**2968.50**
B9	Developer Reputation	RM4,850 and below (B40)	79	54.71	4322.00
		RM4,851 – RM 10,959 (M40)	**40**	**70.45**	**2818.00**
B11	Housing View	RM4,850 and below (B40)	79	54.72	4323.00
		RM4,851 – RM 10,959 (M40)	**40**	**70.43**	**2817.00**

Note: **Bold** indicates the highest mean rank

As presented in Table 4.13, the significant difference between house purchaser from B40 and M40 is the preferences in the general attribute (B) of housing aside from resale value. The result has indicated that house purchasers from M40 (RM4,851 – RM 10,959) have a higher preference on the general attribute (B) of housing. Understandably, house purchasers with higher income would likely choose a house with a larger space, more room, and higher quality from reputable developer simply because they have a larger household budget than those of lower-income house purchaser (Jun, 2013; and Hurtubia, Gallay, Bierlaire, 2010). Moreover, Salleh et al. (2015) revealed that hillside housing is

popular among house purchaser with higher income as they have good views, and it shows prestige to the house purchaser. Unfortunately, housing is the lowest liquidity asset and require large initial capital to purchase (Saw and Tan, 2014). Hence, house purchasers from lower-income would be less likely to consider the house to be an investment vehicle by selling it but as a roof to covers their head.

4.5.5 Mann-Whitney U Test on Education Level

The demographic respondent collected for the education level of "SPM", "STPM", "Diploma", "Advanced Diploma", and "Foundation" were grouped as the "Educated". Whereas respondent with education level of "Bachelor's Degree", "Master's Degree", and "Doctorate" were grouped as "Highly Educated" to fulfil the criteria of the Central Limit Theorem (CLT) where each group of the sample under investigation must have a sample size equal or greater than 30 to exhibit a normal distribution similar to the population. Hence, the difference of respondent for the "Educated" and "Highly Educated" were investigated.

Two hypotheses are generated for this test as below:

Null hypothesis (H_0): There is no significant difference between the educated and highly educated house purchasers on the preferences of purchasing affordable housing.

Alternative hypothesis (H_1): There is a significant difference between the educated and highly educated house purchasers on the preferences of purchasing affordable housing.

Table 4.14: Mann-Whitney U Test on Education Level

Code	Factors Influencing Purchasing of Affordable House	Mann-Whitney U	Wilcoxon W	Asymp. Sig. (2-tailed)
A3	Loan Term	1363	3508	.025
B1	Exterior Aesthetic	1315	2800	.014
B2	Material Quality	1351	2836	.023
B3	Housing Condition	1037	2522	.000
B4	Built-up Area	1300	2785	.010
B5	Number of Bedrooms	1366	2851	.029
B6	Feng Shui	1254	2739	.006
B7	Number of Parking Lot	1291	2776	.010
B8	Land Ownership	1388	2873	.036
B9	Developer Reputation	1371	2856	.033
B10	Property Age	1143	2628	.001
B11	Housing View	1255	2740	.006
C1	Accessibility to Recreational Facilities	1038	2523	.000
C2	Accessibility to Workplace	998	2483	.000
C3	Accessibility to Education Facilities	1375	2860	.034
C4	Accessibility to Medical Facilities	1241	2726	.004
C5	Accessibility to Public Transport	1326	2811	.017
C6	Accessibility to Groceries Market	1045	2530	.000
D1	Community Density	840	2325	.000
D2	Air Quality	1037	2522	.000
D3	Noise Pollution	1082	2567	.000
D4	Neighbourhood Hygiene	1016	2501	.000
D5	Criminality and Security	978	2463	.000

According to Table 4.14, there are twenty-three influencing factors that were revealed to have a p-value that is less than 0.05. The twenty-three influencing factors include **A3** = "Loan Term", all influencing factors from "General Attribute", all influencing factors from "Accessibility Attribute" except for **C7** = "Accessibility to Religious Institution", and all influencing factors from "Neighbourhood Attribute" except for **D7** = "Sense of Community". The result has indicated that there is a significant difference between the educated and highly educated house purchaser. Hence, the null hypothesis (H_0) is rejected for these twenty-three factors.

Table 4.15: Mean Rank of Factors Influencing Purchasing of Affordable House across Income Level

Code	Factors Influencing Purchasing of Affordable House	Respondent	N	Mean Rank	Sum of Rank
A3	Loan Term	**Educated**	**54**	**67.26**	**3632.00**
		Highly Educated	65	53.97	3508.00
B1	Exterior Aesthetic	Educated	54	51.85	2800.00
		Highly Educated	**65**	**66.77**	**4340.00**
B2	Material Quality	Educated	54	52.52	2836.00
		Highly Educated	**65**	**66.22**	**4304.00**
B3	Housing Condition	Educated	54	46.70	2522.00
		Highly Educated	**65**	**71.05**	**4618.00**
B4	Built-up Area	Educated	54	51.57	2785.00
		Highly Educated	**65**	**67.00**	**4355.00**
B5	Number of Bedrooms	Educated	54	52.80	2851.00
		Highly Educated	**65**	**65.98**	**4289.00**
B6	Feng Shui	Educated	54	50.73	2739.50
		Highly Educated	**65**	**67.70**	**4400.50**
B7	Number of Parking Lot	Educated	54	51.42	2776.50
		Highly Educated	**65**	**67.13**	**4363.50**
B8	Land Ownership	Educated	54	53.21	2873.50
		Highly Educated	**65**	**65.64**	**4266.50**
B9	Developer Reputation	Educated	54	52.89	2856.00
		Highly Educated	**65**	**65.91**	**4284.00**
B10	Property Age	Educated	54	48.68	2628.50
		Highly Educated	**65**	**69.41**	**4511.50**
B11	Housing View	Educated	54	50.74	2740.00
		Highly Educated	**65**	**67.69**	**4400.00**
C1	Accessibility to Recreational Facilities	Educated	54	46.72	2523.00
		Highly Educated	**65**	**71.03**	**4617.00**
C2	Accessibility to Workplace	Educated	54	45.99	2483.50
		Highly Educated	**65**	**71.64**	**4656.50**
C3	Accessibility to Education Facilities	Educated	54	52.97	2860.50
		Highly Educated	**65**	**65.84**	**4279.50**
C4	Accessibility to Medical Facilities	Educated	54	50.49	2726.50
		Highly Educated	**65**	**67.90**	**4413.50**
C5	Accessibility to Public Transport	Educated	54	52.06	2811.50
		Highly Educated	**65**	**66.59**	**4328.50**
C6	Accessibility to Groceries Market	Educated	54	46.86	2530.50
		Highly Educated	**65**	**70.92**	**4609.50**
D1	Community Density	Educated	54	43.06	2325.50
		Highly Educated	**65**	**74.07**	**4814.50**
D2	Air Quality	Educated	54	46.70	2522.00
		Highly Educated	**65**	**71.05**	**4618.00**

Table 4.15 (Cont'd)

Code	Factors Influencing Purchasing of Affordable House	Respondent	N	Mean Rank	Sum of Rank
D3	Noise Pollution	Educated	54	47.55	2567.50
		Highly Educated	**65**	**70.35**	**4572.50**
D4	Neighbourhood Hygiene	Educated	54	46.32	2501.50
		Highly Educated	**65**	**71.36**	**4638.50**
D5	Criminality and Security	Educated	54	45.62	2463.50
		Highly Educated	**65**	**71.95**	**4676.50**

Note: **Bold** indicates the highest mean rank

According to Table 4.15, it can be noticed that the highly educated house purchasers in Malaysia have a higher average preference in terms of housing attribute. Majid, Said, and Daud (2012) explained that the educated house purchasers have a higher awareness of their preferences and tend to be much careful when selecting housing. It is revealed by Hurtubia, Gallay, and Bierlaire (2010) house purchaser with different level of education will have different demand for housing and the lifestyle of the house purchaser may be indicated by their education level. Bujang et al. (2015) revealed that educated house purchasers tend to earn more, and hence, they have a higher capability in repaying their loan interest within a shorter period. On the other hand, Haddad et al. (2011) revealed that there was no significant difference between house purchaser from different education level in Jordan.

4.6 Kruskal-Wallis Test

The Kruskal-Wallis Test is conducted to appraise the significant differences in factors influencing purchasing of affordable housing on different ethnicity of house purchasers. The significant differences can be observed by examining the p-value that is less than 0.05 and the chi-square value that is lower than 5.991. The chi-square value is determined by the degree of freedom which is obtained by subtracting the number of groups under investigation by 1. In this study, three ethnic groups were under investigation, and hence, the value of the chi-square is 5.991 which is determined by the degree of freedom of 2.

Table 4.16: Chi-square Table (Source: Beyer, 2017)

Degree of Freedom	P-value			
	0.10	**0.05**	**0.025**	**0.01**
1	2.706	3.841	5.024	6.635
2	4.605	5.991	7.378	9.210
3	6.251	7.815	9.348	11.345
4	7.779	9.488	11.143	13.277
5	9.236	11.070	12.832	15.086
6	10.645	12.592	14.449	16.812

4.6.1 Kruskal-Wallis Test on Ethnicity

There are two hypotheses formulated as follow:

Null hypothesis (H_0): There is no significant difference across the ethnicity of house purchasers on the preferences of purchasing affordable housing.

Alternative hypothesis (H_1): There is a significant difference across the ethnicity of housing purchasers on the preferences of purchasing affordable housing.

Table 4.17: Kruskal-Wallis Test on Ethnicity

Code	Factors Influencing Purchasing of Affordable Housing	Chi-square (X-value)	Asymptotic Significance
A3	Down Payment	6.907	.032
A5	Monthly Instalment	11.744	.003
B2	Material Quality	12.353	.002
B3	Housing Condition	12.036	.002
B6	Feng Shui	19.503	.000
C1	Accessibility to Recreational Facilities	8.598	.014
C6	Accessibility to Groceries Market	8.045	.018
D1	Community Density	6.308	.043
D2	Air Quality	15.012	.001
D3	Noise Pollution	16.079	.000
D4	Neighbourhood Hygiene	11.223	.004
D5	Criminality and Security	9.776	.008

Table 4.17 reveals the results obtained from Kruskal-Wallis Test. It indicated that twelve influencing factors have a p-value of less than 0.05 and an H-value that are less than 5.991. The influencing factors are **A3** = "Down Payment", **A5** = "Monthly Instalment", **B2** = "Material Quality", **B3** = "Housing Condition", **B6** = "Feng Shui", **C1** = "Accessibility Attribute", **C6** = "Accessibility to Groceries Market", and all influencing factors from

neighbourhood attribute (D) except for **D6** = "Sense of Community". Hence, the null hypothesis (H_0) is rejected for these twelve influencing factors.

Table 4.18: Mean Rank of Factors Influencing Purchasing of Affordable House across Ethnicity

Code	Factors Influencing Purchasing of Affordable Housing	Ethnicity	N	Mean Rank
A3	Down Payment	**Malay**	**31**	**69.31**
		Chinese	58	61.26
		Indian	*30*	*47.95*
A5	Monthly Instalment	**Malay**	**31**	**70.45**
		Chinese	*58*	*56.16*
		Indian	30	65.05
B2	Material Quality	Malay	31	58.87
		Chinese	**58**	**69.22**
		Indian	*30*	*43.35*
B3	Housing Condition	***Malay***	***31***	***48.55***
		Chinese	**58**	**69.78**
		Indian	30	52.93
B6	Feng Shui	Malay	31	57.40
		Chinese	**58**	**72.09**
		Indian	*30*	*39.30*
C1	Accessibility to Recreational Facilities	Malay	31	52.68
		Chinese	**58**	**69.03**
		Indian	*30*	*50.10*
C6	Accessibility to Groceries Market	*Malay*	*31*	*49.10*
		Chinese	**58**	**68.49**
		Indian	30	54.85
D1	Community Density	Malay	31	60.35
		Chinese	**58**	**66.25**
		Indian	*30*	*47.55*
D2	Air Quality	*Malay*	*31*	*46.42*
		Chinese	**58**	**71.71**
		Indian	30	51.40
D3	Noise Pollution	*Malay*	*31*	*46.21*
		Chinese	**58**	**72.07**
		Indian	30	50.92
D4	Neighbourhood Hygiene	*Malay*	*31*	*48.73*
		Chinese	**58**	**70.22**
		Indian	30	51.88
D5	Criminality and Security	Malay	31	51.68
		Chinese	**58**	**69.34**
		Indian	*30*	*50.53*

Note: **Bold** indicates the highest mean rank
Italic indicates the lowest mean rank

According to Table 4.18, the respondent of “Chinese” ethnicity has higher preferences for the general attribute (B), accessibility attribute (C), and neighbourhood attribute (D) when purchasing affordable housing. Whereas the respondent of “Malay” ethnicity has a higher mean rank in financial attribute (A). According to Adam (2018), the bumiputra has been settling comfortably in their homeland with no pressure on the accumulation of wealth. Among the Malaysian who do not possess any financial asset, 72% are of the “Malay” ethnic group (Adam, 2018). Hence, “Malay” respondents have higher concern on the financial attribute than other ethnic groups.

While the “Chinese” ethnic group getting well educated, and hence, they generally have a higher awareness of their preferences for affordable housing. In terms of Feng Shui, it is understandable that the “Chinese” ethnic group placed an important emphasis on the influencing factor as it is a traditional practice of the “Chinese” ethnic group. Moreover, it can be noticed that the “Malay” ethnic group have less concern for the environmental qualities such as **D2** = “air quality”, **D3** = “noise pollution”, and **D4** = “neighbourhood hygiene”. The findings obtained from this study contradict the study from Majid, Said, and Daud (2012) whereby it was revealed in their study that there is no significant difference in the preferences of housing attribute between different ethnic groups in Malaysia. On the other hand, Hurtubia, Gallay, and Bierlaire (2010) found that the differences in preference of housing attribute have led to spatial segregation of ethnic groups in Europe and America.

4.7 Chapter Summary

This chapter has discussed comprehensively the factors that influence the house purchaser in purchasing affordable housing. A total of 122 sets of questionnaires were returned but 3 sets were discarded for the respondents who were not within the objective of the research. The data collected were then analysed using Cronbach’s Alpha Reliability Test, Arithmetic Means, Mann-Whitney U Test, and Kruskal-Wallis Test.

From the result of arithmetic means, it is discovered that financial attributes (A) were highly prioritised by the house purchasers and accessibility attributes (C) were less prioritise by the house purchaser. Moreover, the Mann-

Whitney U Test had revealed that there is a significant difference in the preferences of purchasing affordable housing between gender, age, marital status, income level, and education level. Other than that, Kruskal-Wallis Test discovered that there is a significant difference between the three ethnic groups which are Malay, Chinese, and Indian.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarises and concludes the overall study. Firstly, the objective and the accomplishment of the study is briefly discussed. Then, limitations faced during the study are listed and the recommendations are proposed to improve future research. The chapter is then ended with a brief discussion on the implication and contribution of the study to the industry and body of knowledge.

5.2 Summary of Key Findings for this Research

Figure 5.1 summarises the major findings obtained from this research. There are 4 levels shown in Figure 5.1, the attributes were ranked according to the level of influence on the affordable housing purchasing decision of house purchasers which was determined by the overall mean ranking of each attribute. The attribute that prioritised highest by the house purchasers is the financial attribute (A) whereas the accessibility attribute (C) was less prioritised by the house purchasers. Hence, the financial attribute (A) was ranked the highest while the accessibility attribute (C) was ranked the lowest. In terms of preferences of factors in each attribute, loan facilities from financial attribute, housing condition from general attribute, criminality and security from neighbourhood attribute, and accessibility to workplace from accessibility attribute were highly prioritised by B40 and M40 house purchasers.

This study also revealed that there is a significant difference in the preference of affordable housing attribute between each social demographic among house purchasers, such as gender, age, marital status, income level, education level, and ethnicity. Hence, the social demographic that was revealed to influence the affordable housing purchasing decision on the house purchaser was incorporated into the findings as well.

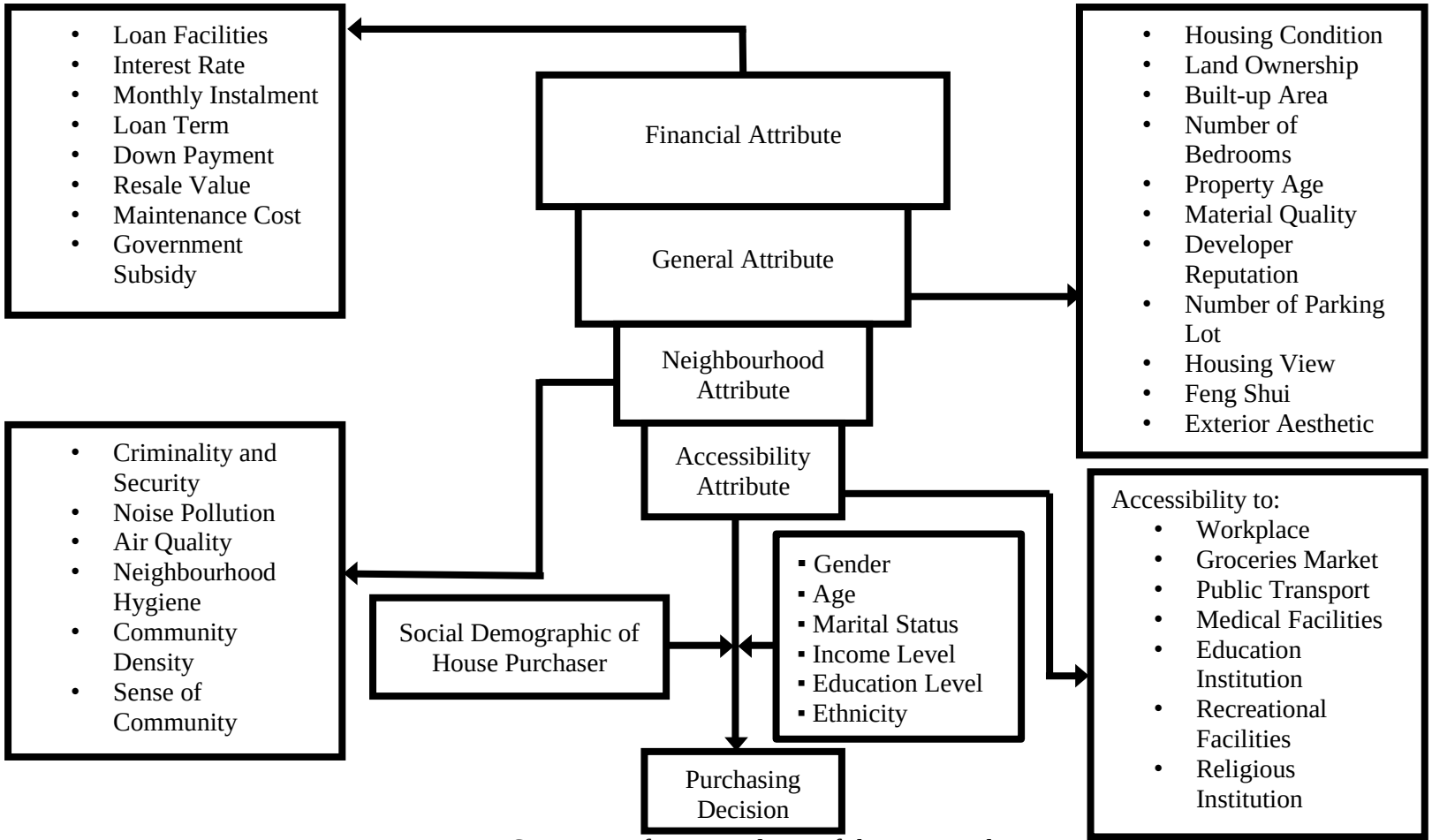

Figure 5.1: Summary of Key Findings of this Research

5.3 Accomplishment of Research Objective

Three research objectives were formulated and accomplished; the accomplished objective will be discussed in detail in the next section.

5.3.1 Objective 1: To Identify the Factors Influencing House Purchasers in Purchasing Affordable Housings

The first objective of this study was achieved by reviewing secondary sources of information such as journals, conference papers, newspapers, books, government publications, and non-government organisation reports. Thirty-two influencing factors have been identified that influence the purchasing decision of affordable housing as illustrated in Figure 2.1. The thirty-two influencing factors were grouped under four main attributes which are financial, general, accessibility, and neighbourhood.

5.3.2 Objective 2: To Prioritise the Importance of Factors Influencing House Purchasers in Purchasing Affordable Housings

The second objective of this study achieved by conducting an arithmetic mean analysis of the data collected through a questionnaire. The influencing factors that have a higher mean score would mean that house purchaser prioritised more than influencing factors that have a lower mean score.

This study has revealed that out of four main attributes, “Financial Attribute” (A) were highly prioritised by house purchasers, followed by “General Attribute” (B), and “Neighbourhood Attribute” (D). Whereas “Accessibility Attribute” (C) was less prioritised by house purchasers in purchasing affordable housing. The three influencing factors that were highly prioritised by house purchasers are **B3** = “Housing Condition”, **A2** = “Loan Facilities”, and **A1** = “Interest Rate”. On the other hand, the three influencing factors that were less prioritised by house purchasers are **C7** = “Accessibility to Religious Institution”, **C1** = “Accessibility to Recreational Facilities”, and **D6** = “Sense of Community”.

5.3.3 Objective 3: To Compare the Factors Influencing House Purchasers in Purchasing Affordable Housings Based on the Differences in Social Demographic

The third objective was accomplished through statistical tests such as Mann-Whitney U Test and the Kruskal-Wallis Test to investigate the significant difference of preferences between house purchasers of different social demographics. The social demographics of the house purchaser under investigation were gender, age, marital status, income level, education level, and ethnicity. In brief, social demographic group of gender, age, and marital status have great significant differences in their preferences of accessibility attribute (C) and neighbourhood attribute (D); house purchasers of different income group have significant difference on the general attribute (B); while the highly educated house purchasers have higher preferences on the general attribute (B), accessibility attribute (C), and neighbourhood attribute (D); Chinese ethnic group has higher preferences on the general attribute (B), accessibility attribute (C), and neighbourhood attribute (D), and Malay ethnic group has more concern on the financial attribute (A).

5.4 Research Contribution

The study has contributed to the insight of house purchasers from B40 and M40 in Malaysia on their preferences and factors influencing the purchase of affordable housing. Besides, this study also proves that social demographics of the housing purchases are influencing their decision in purchasing affordable housings. The result of the study is useful for the practice of several key stakeholders which include the policymakers, local and housing authority, and property developers.

The findings of this study are expected to benefit the policymaker, housing and local authority who may make proper housing planning and determined housing policies that will lay the foundation of sustainable development of the housing market. The policymaker may also utilise the findings in implementing cooling measures when reviewing the base interest rate (BLR), real property gain tax, and the debt serving ratio. This will help the property market to return to its former glory and ensure high ownership of

housing among Malaysian. Besides, the findings can be utilised as an indicator for the local authority in setting a development guideline for the property developer when planning affordable housing development.

The information and results may act as a bridge that closes the gap between the property developer and the house purchasers. By doing that, the property developer could determine appropriate marketing strategies and align them to the house purchaser's preferences by tailoring the housing product to better satisfied the targeted house purchasers. The property investors or buyers may be benefitted by making a much-informed purchasing decision by having the knowledge of various factors to be evaluated before purchasing housings. The house purchasers could have better satisfaction from the purchase of affordable housings provided by the Government.

The findings of the study have contributed to the expansion of the existing knowledge of studies on the preferences of housing attribute and the enhancement of the general knowledge towards the field of academic. There are a great number of studies on housing preferences of the aggregate house purchaser, but little was conducted on preferences of affordable housing of the lower and medium income house purchasers. Hence, the findings obtained from this study also contributed by closing the identified knowledge gap.

5.5 Research Limitation

There are a few limitations identified during the conduct of the research. First of all, this study only investigated house purchasers who reside in Klang Valley. Besides, the size of the sample is relatively small to represent the whole population of Malaysia. The sample size of each social demographic house purchasers was also imbalanced to represent the disparity of each social demographic house purchasers. The research result will be more comprehensive if other areas of Malaysia were also included, a balanced number of the respondent from each social demographic, and an appropriate sample size is gathered.

Other than that, the use of the quantitative data collection method has limited the extent of information that were interpretable as the data was

collected by structured questionnaire with the closed-ended question, no opportunity was given for detailed elaboration. This may hinder the research in achieving the research objective and aim. Besides, feedback was received by some respondents that the choice of words in the questionnaire is somewhat difficult to be understood. While the use of distribution methods such as email and social platform has restricted the interaction and opportunity to explain the confusing question. Hence, the data collected might not be able to accurately represent the true intention of the respondents.

5.6 Research Recommendation

To achieve a much comprehensive research finding, a few recommendations are suggested for future research. Firstly, future research is recommended to extend the research scope in terms of geographically to include other areas of Malaysia to achieve comprehensive findings that may generalise the whole population. Besides, each group of social demographics should be investigated in details. For example, the classification of lower income (B40) can be further segregated into B1, B2, B3, and B4, to achieve findings that will generalise a precise group of house purchasers.

Furthermore, a pilot study is suggested to test the questionnaire with a small number of participants before main data collection. Future research is recommended to use mixed-method in data collection. The use of mixed-method may give the researcher the benefit of further justification of the numerical data obtained from the quantitative questionnaire and also using numerical data to further support the descriptive findings from qualitative interview. Therefore, by using a mixed data collection method, the researcher may utilise the strengths of both quantitative and qualitative method.

5.7 Chapter Summary

This chapter has summarised the research background, aim, and objective. Besides, the three research objective have been successfully achieved. The research limitations were addressed, and recommendations were proposed to improve future study. Finally, the contributions of the study were identified.

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APPENDICES

APPENDIX A: Questionnaire

Section A: Demography Survey

Tick (✓) in the checkbox where appropriate.

1) Select your gender.

   o Male
   o Female

2) Select your ethnicity.

   o Malay
   o Chinese
   o Indian
   o Others: _____

3) Select your age group.

   o Less than 21 years old
   o 21 – 30 years old
   o 31- 40 years old
   o 41- 50 years old
   o 51- 60 years old
   o 61 years old and above

4) Select your current marital status.

   o Married
   o Single
   o Divorced
   o Widowed

5) How many children do you have now? (Prior to Q4)

   o 0
   o 1
   o 2
   o 3
   o More than 3

6) Select your highest education level.

   o SPM
   o STPM
   o Diploma
   o Bachelor's Degree

o Master's Degree
o Doctorate
o Others: _____

7) Select your current employment sector.

o Private sector
o Public sector
o Self-employed
o Un-employed

8) Select your current monthly income level.

o RM 4,850 and below
o RM 10,959 and below
o RM 10,960 and above

9) Do you own any affordable housing now?

o None
o 1
o Above 1

10) How likely will you purchase affordable housing in the next 5 years? (1 = Not at all likely, 2 = Slightly likely, 3 = Moderately Likely, 4 = Very Likely, 5 = Completely Likely)

o 1

o 2

o 3

o 4

o 5

11) Which price range of housing considered affordable to you?

o RM 150,000 and below

o RM 150,000 – RM 200,000

o RM 200,001 – RM 250,000

o RM 250,001 – RM 300,000

o RM 300,001 – RM 350,000

o RM 350,001 – RM 400,000

Section B: Factors Influencing the Purchase of Affordable Housing

This section is intended to evaluate the factors influencing the purchasing of affordable housing. Rank each question by ticking (✓) one of the following based on level of importance.

Purchaser's Consideration Factors in Buying an Affordable Housing	Not important	Less Important	Moderately Important	Very Important	Extremely Important
	1	2	3	4	5
Financial Attributes					
The interest rate offered by the bank					
The amount of loan offered by the bank					
The loan repayment duration					
The down payment required to pay is within my affordability					
The availability of government housing scheme (eg: Rumah Selangorku 2.0, Mydeposit, and My First Home Scheme)					
The amount of monthly instalment					
The resale value of the property					
The amount of maintenance fee required to pay monthly					
General Attributes					
The exterior design of the house					
The material used for the house					
The housing condition (eg: leakage of waterpipe, bad ventilation, bad soundproofing, and roof leakage)					
The built-up area of the property					
The number of bedrooms and bathrooms					

The arrangement of bedrooms and bathrooms					
The number of parking lots					
The land title of the property (eg: Freehold and Leasehold)					
The reputable status of the developer					
The age of the property					
The view from the housing units					
Distance Attributes					
Accessibility to recreational facilities (e.g. parks, playground, and swimming pool)					
Accessibility to the workplace					
Accessibility to education facilities					
Accessibility to medical facilities					
Accessibility to public transportation					
Accessibility to the groceries market					
Accessibility to the religious institution (e.g. mosque, church, and temple)					
Neighbourhood Attributes					
The population density within the neighbourhood					
The air quality around the neighbourhood (For example: Housing that is near to construction site, cities, dumpsite, and highway are likely to be infected by dusty air quality)					
The noise pollution (For example: noise that is generated from the					

construction site and heavy traffic)					
The environment around the neighbourhood is clean and tidy (eg: the street is free from littering, vandalism of public amenity, graffiti, and pest infestation ground)					
The neighbourhood safeties and criminality rate					
The relationship with neighbours					