

THE IMPACT OF COVID-19 ON RESIDENTIAL
PREFERENCE IN KLANG VALLEY

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Preference In Klang Valley

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DECLARATION

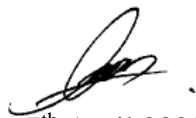
I hereby declare that:

- (1) This research project is the result of my own effort, and all information sources, whether printed, electronic, or personal, have been properly acknowledged in the references.
- (2) No portion of this study project has been submitted in support of an application for another degree or certification from this university, another university, or other higher education institutions.
- (3) This study report has a word count of 29,835.

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ABSTRACT

Since the outbreak of COVID-19 in Malaysia, the government of Malaysia has implemented series of movement restriction control to prevent the collapse of healthcare systems due to the increase of daily infection cases in Malaysia. During the COVID-19 outbreak, property market performance was greatly affected and shown a significant decline in year 2020 compared to 2019 according to NAPIC's record.

There are studies reveal that the impact of COVID-19 pandemic has changed the human's living style include living lifestyle, work, and entertainment. Behaviour across social demographic could be different after COVID-19 outbreak, moreover if the impact has affected on the homebuyers' financial status. In this situation, further studies shall be conducted to examine whether the homebuyers' preference has changed after COVID-19 outbreak. Therefore, the purpose of this study is to identify homebuyers' preference after the outbreak of COVID-19 and examine the difference in housing preference across homebuyers' socio-demographic characteristics.

For this study, 386 data were collected through online survey platform 'Microsoft Form' which distributed between January 2023 to February 2023. However, 374 sample were used to analyse in this study. 'Descriptive analysis' and 'Mann-Whitney-U test' were adopted to determine the significant of the housing attributes and compare to the findings from the literature review. Differential in housing preference before and after the outbreak of COVID-19 will be identified and explained by supporting studies. Any shortfall in supporting study would be the research gap in future. In summary, this study provides a better understanding of the residential preferences impact after COVID-19 outbreak for market players.

DEDICATION

I would like take this opportunity to dedicate this research project to my supervisor, my spouse, and children. With your constant guidance and support throughout the entire research project, finally, I managed to complete this research project smoothly.

Without your moral support and inspiration from all of you, this research endeavour will not be able to be completed.

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LIST OF ABBREVIATIONS

BNM	Bank Negara Malaysia
BTS	Build-Then-Sell
DOSM	Department of Statistics Malaysia
HCN	Housing Cost Burden
HOC	Home Ownership Campaign
HOPE	Home Ownership Programme for Employee
FRTO	Flexible Rent-To-Own
GNI	Gross National Income
HSP	Home Surveillance Order
HVAC	Heating, Ventilation and Air-Conditioning
KPKT	Kementerian Pembangunan Kerajaan Tempatan
MCO	Movement Control Order
MHPI	Malaysian House Price Index
NAPIC	National Property Information Centre
REHDA	Real Estate and Housing Developers' Association
RM	Ringgit Malaysia
Sdn Bhd	Sendirian Berhad
STB	Sell-Then-Build
UN	United Nations
WFH	Work From Home

CHAPTER 1

INTRODUCTION

1.0 Introduction

Chapter 1 will be presenting an outline and fundamental background of the overall research study. The discussion of the study's background, problem statement, research questions, and goals will be the first step in this investigation. Followed by the formulation of hypothesis of the study. Last but not least, the importance of this research would be explained as well as describing the layout of chapters flows in this study.

1.1 Background of Study

House is a shelter presenting a human's cultural interpretation and phenomenon (Ling, Nurul, & Siti, 2016). Maslow's Hierarchy of Needs theory can be used to explain a house is beyond the basic sheltering needs and moving towards the physiological and safety needs of a human. Homebuyers' preferences has been evolved from the basic need for a shelter to a desire for a quality living environment (Tan T. H., 2012). In other words, a house shall not be limited to basic needs of shelter, but also shall look into the people's preference and needs (Ling, Nurul, & Siti, 2016). It again mentioned in the research done by Shehab & Kandar (2021) that human needs for house have beyond its beginning purpose which is for sheltering purposes. The initial human decision to own a house is for sheltering purposes, simply just because of the primary need of humans. Later, human treat the ownership of a house as an investment for long run which provide them with privacy and protection, ensuring the stability of their families as well (Shehab & Kandar, 2021).

According to research done by Chong & Omar (2017), there are many Malaysians believe that owning a residential property is a primary goal in their life. The researcher further theorized that homeownership is enhancement to an individual's education outcome, ability to increase their financial returns, manage to improve their life's satisfaction and encourage

neighbourhood stability (Chong & Omkar, 2017). Owning a house is one of the achievements planning for most families (Hassan, Nobaya, & Hashim, 2022). It would be beyond for sheltering purpose, which is more toward for comfort. Ownership of a property is a way representing a person’s achievement. As a result, addressing the necessities of family by means of housing becomes more significant, and housing symbolizes the family's needs most distinctive investment (Hassan, Nobaya, & Hashim, 2022).

In Malaysia, NAPIC record show that in first half of year 2022 (H1 2022), the property market activity recorded better performance. All property sectors experienced year-over-year growth, with more than 188,000 transactions totalling RM84.40 billion being recorded. This represents a rise of more than 30% in volume and value from the same time last year. In contrast, over the past ten years, residential property has dominated the real estate market. According to the data retrieve from NAPIC in between year 2011 to 2021, residential housing recorded the highest percentage of 63.96% of the overall real estate market. In first half of year 2022 (H1 2022), A total of 116,178 transactions totalling RM45.62 billion were reported in the residential property sector during the review period, a rise of 32.2% in value and 26.3% in volume year over year. About 47% of the nation's total residential volume was made up of the four main states, Pulau Pinang, Kuala Lumpur, Johor, and Selangor.

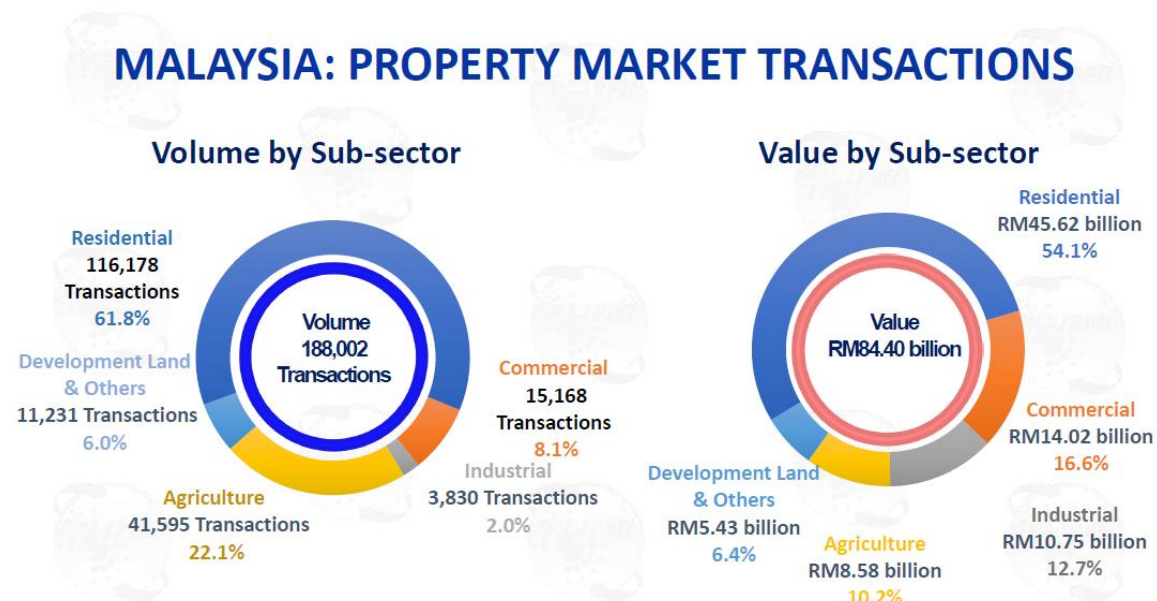


FIGURE 1.1 PROPERTY MARKET TRANSACTIONS (NAPIC, 2022)

However, residential properties new launches show softened according to NAPIC report for Property Market Status H1 2022. Over 10,000 newly launched units were reported,

which is a decrease of 66.7% from the 31,687 units (revised) in first half of year 2021(H1 2021). The number of new releases fell by 13.3% in second half of year 2021. (H2 2021: 12,173 units). Sales performance for new launches were reported at 20,3 percent, which is slightly less than H1 2021 (revised 20,6 percent) and H2 2021 (28,1 percent).

On the other hand, Property Market First Half 2022 report published by NAPIC on 14th September 2022, explain that Improvements in the overhang scenario were seen as the market recovered. 34,092 overhang units totaling RM21.73 billion were registered, which is a decrease of 4.6% in value and 7.5% in volume when compared to H2 2021. The majority of the excess, 6,040 units totaling RM4.73 billion, are in Johor. In addition, the number of unsold residential units under development fell by 11.1% to 62,404 units from H2 2021 to H2 2022. (70,231 units). Similar results were seen in the subsector of leased apartments, which saw 22,674 overhang units valued at RM19.32 billion, representing declines in volume and value of 6.7% and 5.6%, respectively, from H2 2021. Johor, with 68.0% (15,423 units), had the greatest overhang in the nation. Kuala Lumpur and Selangor, with 18.9% (4,279 units) and 9.9% (2,248 units), respectively, came in second and third.

The overhang issue can be related to the issue of affordability of the homebuyer in the market. Based on the Housing Cost Burden (HCB) approach, a house is affordable if housing costs are less than 30% of monthly household income (Cheah, Stefanie, & Ho, 2017). A mismatch between supply and demand is due to market failure to provide enough affordable housing (Bank Negara Malaysia, 2021) further contributed towards houses becoming seriously unaffordable in Malaysia (Cheah, Stefanie, & Ho, 2017). According to Bank Negara Malaysia (2021), income grew rate is 2.1% per annum while house price grew rate is 4.1% increase per annum. It shows income grew is slower than house price. The price-to-income ratio should not exceed 3.0 (Bank Negara Malaysia, 2021). Based on the National Affordable Housing Policy 2019, the maximum price of affordable housing in Malaysia is RM 300,000., However, NAPIC record is still showing high overhang properties under affordable housing price range which is below RM 300,000 at 28.3% in H1 2022. Other significant overhang residential property are between the price range of RM500,000 to RM 1 million (29.6%) and RM300,000 to RM500,000 (28.3%). Beside on affordable housing price, Bank Negara Malaysia (2021) also highlighted that 65% of borrower already possess either car or personal loans, thereby limiting their capacity to take on new borrowing for purchase of residential property.

RESIDENTIAL OVERHANG H1 2022

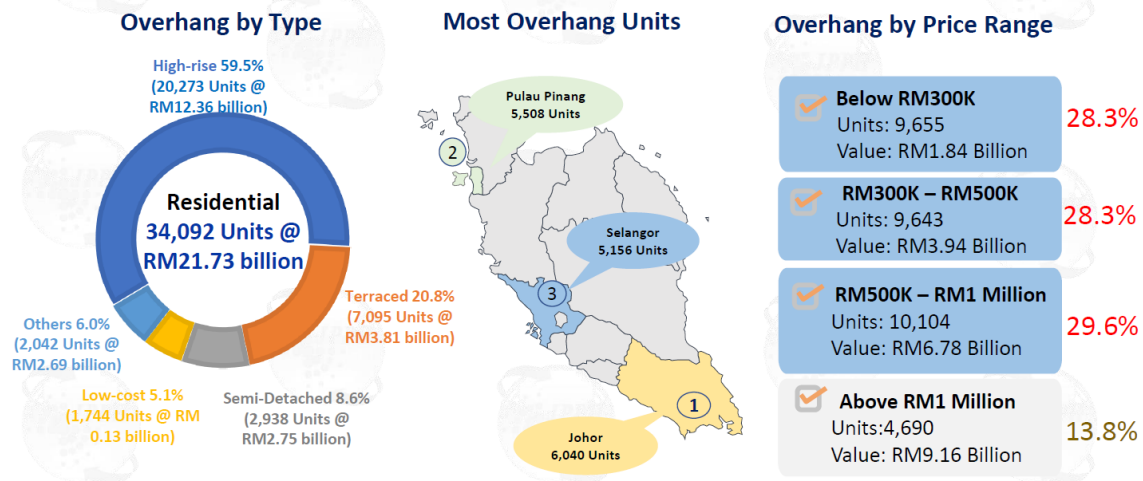


FIGURE 1.2: RESIDENTIAL OVERHANG H1 2022 (NAPIC, 2022)

The Federal Territory of Kuala Lumpur, Gombak, Petaling, Klang, and Hulu Langat are the five districts that make up the urban region known as Klang Valley, which spans an area of about 2,832 square kilometers (Rashid & Ishak, 2009). Klang Valley is a highly urbanized region in Malaysia (Foo & Kidokoro, 2011) lies within Kuala Lumpur and Selangor (Ong & Choon, 2018). Klang Valley is the leading factor of growth in Malaysia with contributes approximate RM263 billion to Malaysia's gross national income in year 2010 (Ong & Choon, 2018). Klang Valley is also emphasis in developing the infrastructure, talent and economic (Ong & Choon, 2018). More physical development is anticipated in the Klang Valley area based on the theory that urbanization is a driver of Gross National Income (GNI) growth and people's lives (Foo & Kidokoro, 2011).

In this regard, more job opportunities are expected in Klang Valley and encourage rural-urban migration moreover with well-developed facilities. According to (Tobi, Jasimin, & Rani, 2020), urbanisation is related to the development of the population and cities in which more people will be living in urban areas compared to rural. There are about 7.2 million people reside in Klang Valley, or equivalent to one-fifth of total population in Malaysia (Ong & Choon, 2018). According to DOSH (2022), out of the five municipal districts with a population of more than one million in 2020, all of which were located in the Klang Valley, Petaling, Selangor is the only one with more than two (2) million residents, (DQSM, 2022). Housing demand has increased as a result of more rural residents moving to metropolitan areas (Tan T. , 2013). As a result, there is a greater need for housing and other

amenities to accommodate the expanding populace. This is also supported by (Tobi, Jasimin, & Rani, 2020) that an increase in urban population will result in a greater demand for property as well as changes to the commercial, residential, industrial, and transportation sectors. Additionally, as the population grows, so does the desire for housing, which drives up housing costs (Ong T. S., 2013). In this study, we will be focusing on the residential properties only.

Homebuyer preference is important criteria taken into consideration by homebuyer when making decision in buying a house especially for first home (Khan, et al., 2017). All generation are unique as they exposed to various characteristics alongside with different needs and preferences (Ismail, Halil, Abidin, & Hasim, 2020). For example, generation Y believes that the most crucial preferences for housing are home age, environmentally friendly concepts, gated and guarded neighbourhoods, neighbourhood cleanliness, commute times to work, and eatery locations (Kam, Lim, Al-Obaidi, & Lim, 2018). Whereas, networks of community assistance were discovered to be a significant social and environmental component for the elderly (Ismail, Halil, Abidin, & Hasim, 2020).

In this respect, the housing sector must continuously change to meet the needs of homebuyers (Kam, Lim, Al-Obaidi, & Lim, 2018). The housing developer must be aware of the important factors that prevented the launched housing units from being sold because the developer's offering did not satisfy the preferences and requirements of the homebuyers (Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019). Therefore, it is vital for property developer to identify their target customer segment and understand the homebuyer's preference to prevent mismatch in demand and supply which cause the developer's projects end up with housing properties remaining unsold.

Some variables may have an impact on homebuyers' preferences, which ultimately influences their choice to purchase a home (Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019). Every individual make decision differently from one and another. According to Khan, et al. (2017), young generation who have small household usually consider to purchase a small house and prefer closer to their work place. Income of homebuyer is one of the elements that will impact decision-making. Individual with higher income has the probability to purchase higher price residential properties compare to those who have middle and lower income (Khan, et al., 2017).

Kam, Lim, Al-Obaidi, & Lim (2018) also emphasized a few additional variables that may affect a homebuyer's choice, including age, marital situation, households, educational background, cultural values, and the size of households. In addition to household traits, dwelling, locational, and neighbourhood characteristics are significant factors that influence housing choice (Kam, Lim, Al-Obaidi, & Lim, 2018).

The coronavirus disease 2019, also known as COVID-19, which affects humans' respiratory systems, is not successfully contained, resulting in a worldwide pandemic in March 2020. Many countries have made a tough decision to enforce orders for lockdown or isolation at home in order to avoid the collapse of healthcare systems (Balemi, Fuss, & Weigand, 2021), inclusive Malaysia. Anyone who tests positive for COVID-19 is required to spend seven (7) days in seclusion under a Home Surveillance Order (HSO). The general public, employees, and students all used their homes for school and university education activities as well as for ongoing office work (work from home, WFH). Since people are fear and anxiety when traveling, using public transportation, or going to the grocery store, Malaysians have even expressed a preference to remain at home in order to protect themselves from germs and viruses in the future (Shah, et al., 2020). In this instance, the perception of contemporary residential patterns may have altered as a result of changes in lifestyle, employment, and entertainment during the COVID-19 pandemic (Kocur-Bera, 2022). COVID-19 pandemic is not only causing massive economic and environmental impact but it also has thoroughly changed the human's living style.

Since the outbreak of COVID-19, the Malaysian government has imposed series of Movement Control Order (MCO) in order to confront the pandemic. During the enforcement of the MCO, people's income has significantly been affected (Shah, et al., 2020) and real estate property sales drops especially for residential property (Balemi, Fuss, & Weigand, 2021). In Malaysia, the rate of overhang properties is rising as a result of MCO, which also causes other sectors to experience economic declines and causes the country's GDP to decline (Balemi, Fuss, & Weigand, 2021). In this regard, in order to boost home ownership, the government of Malaysia has introduced the initiative call the Keluarga Malaysia Home Ownership Initiative (i-MILIKI) which provides stamp duty exemption for first-time homebuyers as encouragement to own residential property (MIDF Research, 2022).

1.2 Problem statement

Sourcing of own preferable type of residential is major decision of homebuyer. Usually, homebuyer will be sourcing their own preferred residential unit either from the primary or secondary market around their preferred location. Primary market is referred to new product to be developed by the property developer. Whereas secondary market is referring to the sub-sales unit by current vendor. Hence, it is advantage to property developer who is the primary market supplier, to discover the current trend and preferences of the prospect homebuyer as to ensure the project launch by the property developer will be delivering in relative to the market need.

Young people are often adopting a 'live for today' attitude to financial planning (Ling, Nurul, & Siti, 2016). People prefer homeownership compared to renting if they could afford it (Sobieraj & Metelski, 2022). In Malaysia, many Malaysians believe that owning a residential property is a primary goal in their life (Chong & Omkar, 2017) but there are also some people choose to rent instead of buying a house as these people believe in a debt-free lifestyle (Chung, Y.Y., 2021). In Australia, young generation prefer to rent rather than purchase initially as to moderate risk (Jang, Owadally, Clare, & Kashif, 2022). In Taiwan, young generation not prefer lifetime mortgages, and newlyweds prefer renting as a growing trend in Taiwanese real estate (Yang, Lee, & Lin, 2022). Thus, this study is will also to find out the concern by different demographic group which affecting their preference in homeownership.

On the other hand, property developer shall identify the possible factor in the choice of a homebuyer to purchase a residential property. Young generation in Klang Valley are facing issue in owning a house (Ling, Nurul, & Siti, 2016) as the house's price hike up faster than the income rate (Bank Negara Malaysia, 2021), which reducing the affordability of homebuyer to buy their preferred property. Affordable housing is applicable when housing costs for households, including utilities, are less than thirty percent of their income (Adzhar, Rahim, Basrah, Majid, & Mustafar, 2021). However, the supply of affordable home, especially in the metropolitan areas surrounding Klang Valley, is still inadequate to meet the demand at this time (Adzhar, Rahim, Basrah, Majid, & Mustafar, 2021). This situation was explained in the research done by Adzhar, Rahim, Basrah, Majid, & Mustafar (2021), the cost of housing development is getting higher for developer to develop a housing properties and the developer's product has become not viable to sell in affordable price

range to the homebuyer. Property developer as a business organisation is to prioritise their profit by focusing on higher profitable project rather than affordable residential product. In this scenario, property developer may continue contributing to the surplus of residential unit in the market due to mismatching of product supply and demand in the market (Bank Negara Malaysia, 2021).

The property market in Malaysia has been significantly impacted by the COVID-19 pandemic (Zainab, Bemgba, Dzurllkanian, & Salfarina, 2022). In year 2021, real estate recorded lesser transaction in both the primary and secondary markets as result of the prolonged pandemic and restrictions under the MCO. The first half (H1) of 2021 saw the lowest level of property market activity in five years and only 87.3% of the market's H1 2019 intensity, according to NAPIC's data on the first half's performance of the real estate market. Only 90.5% of the market's transacted value from just over two years ago was represented in the statistics for H1 of 2021, which is valued at RM62.01bil (DOSM, 2021). As reported by The Edge (2022), the market player includes the property developer and property prospects are in the mode of wait-and-see approach. The COVID-19 crisis has caused consumers and companies worldwide delaying in their spending or so called "wait-and-see" mode (Sari, 2022). This wait-and-see sentiment happened when the market players' income has reduced (The City & Country Team , 2022). Prospective homeowners are anticipated to keep their 'wait-and-see' mindset in light of the uncertainty surrounding factors like the ongoing Price increases, a recession, inflation, and a raise in the overnight policy rate (Kathy, 2022).

In year 2022, when the business activities have resumed, eventually the work culture has also evolved after impact by the Covid-19 pandemic. WFH is an effective business procedure to ensure business continuity and to provide employees with work-life balance, so the idea of virtual meetings and WFH is one that has become a permanent fixture in some corporations (Kaushik & Guleria, 2020). As a result, people are choosing to live in more homes that can also be their alternative workplace or a more comfortable place for their kids to study (The City & Country Team , 2022).

Homebuyer's preference shall relate to current housing conditions and how people envision their prospective living arrangements (Andersen, 2011). A successful housing project is looking at the ability of property developer in delivering a housing that matches the homebuyer's preferences which is essential (Mulliner & Algrnas, 2018). Property

developer who are aware of prospective buyers' housing goals from time to time will avoid overlooking the homebuyer's preference and development of unsuitable living conditions, potentially, slums (Mulliner & Algrnas, 2018). Property developer and the architect who are in the primary market has the advantage to study the homebuyer's preferences, and then designing residential properties based on homebuyers' the stated preferences. On the other hand, property developer should make sure that the neighbourhoods have access to adequate basic public amenities, which will be providing better options for homebuyers to consider and diminish the lack of enthusiasm to property developer's product in some neighbourhoods (Ameen & Ali, 2019). Homebuyers who are concern on locational factor, the homebuyer will emphasis on suitable location for their stay rather than financial and neighbourhood factors (Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019). However, contrary to what they previously thought that customers are susceptible to market tactics, pricing, and gifts, property players now recognize that homebuyers play an equal part in determining the market's future course. (The City & Country Team , 2022). In this regard, a successful property developer must have better comprehension of homebuyers' preferred housing characteristics in order for them to develop an appropriate housing that will be successful in the long run. On top of that, it is worth acknowledged that there is no one size fit all strategy, mainly due to the differences in socio-demographic background. Thus, in addition to general housing preference, this study take one step further to investigate how the housing preference differ across socio-demographic characteristics.

1.3 Research Question

Following to the problem encounter in the market, mismatch of market demand and supply, overlooked on homebuyer preferences, and factor influencing the homebuyer decision making in purchase of residential property based on the present economic situation and also impact by the COVID-19 pandemic, therefore, the research question developed as follow:

- 1) What are the homebuyers' preference after the outbreak of COVID-19 pandemic?
- 2) How are the housing preference differ across socio-demographic background?

1.4 Research objectives

In previous empirical studies done by many other researchers, There was an interesting discussion about the relative significance of these housing preferences. In this regard, this study is intended to developing an understanding of which housing attributes are homebuyer's preferences after the outbreak of COVID-19 pandemic. Furthermore, this study will also examine the residential preferences in various demographic background.

Klang Valley was identified as study area mainly because Klang Valley is the center of development and economic in Malaysia. Klang Valley is the country's fastest growth region with high concentration of residential area and high residential transactions (Tan T. H., 2011) which is ideally for the purpose of this research. This study will be informative to the residential property market player especially the homebuyer and the property developer. This study will be an opinion for homebuyer before their decision making for in relate to the preferred residential to purchase and as well as for property developer to take into consideration for their housing development.

In answering the research question, the following objectives are set to be achieve:

- 1) To identify homebuyers' preference after the outbreak of COVID-19 pandemic.
- 2) To examine the difference in housing preference across homebuyers' socio-demographic characteristics.

1.5 Scope of Study

Figure 1.3 illustrate the research study flow and describing the agenda of every phase of the research as well as the results of the relevant phases.

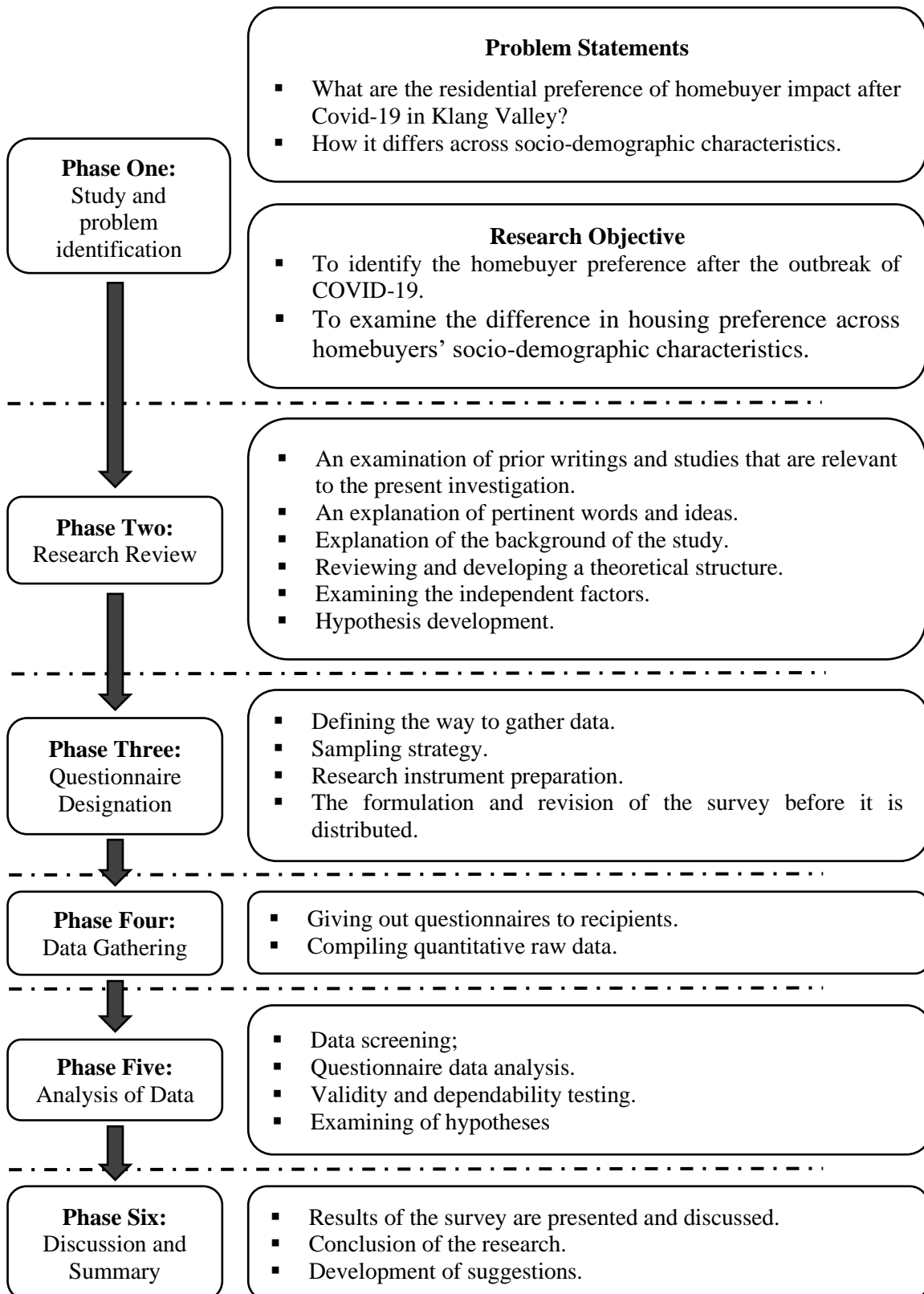


FIGURE 1.3: RESEARCH STUDY FLOW

1.6 Significance of Study

This research study is to discover the homebuyer preference after COVID-19 outbreak. This study will be the reference to homebuyer, helping them in making appropriate decisions for their preferred residential property. On the other hand, it is an advantage to homebuyer in which they may gain greater satisfaction if the property developers incorporating the appropriate housing attributes identified in this research.

Malaysian property developers ought to adopt a longer-term and more comprehensive approach to adding value to their residential development (Tan T. H., 2011). Property developers who taken care of homebuyers' preferences in their product development will assist in preventing an imbalance between property supply and demand, and further avoid their new launched residential property end up as remain unsold properties. Beside of several cutting-edge and forceful marketing techniques have been used to boost sales in a sluggish market (Foo C. H., 2022), it is still necessary for property developers should frequently update themselves with the most recent requirements of potential homebuyers to prevent unsuccessful attempts in any housing projects (Kam, Lim, Al-Obaidi, & Lim, 2018). It is also suggesting property developer shall also aware of the new norm living life style and blend into the new project design criteria as well as selling approaches used to reach out to the prospective homebuyer.

Since the Covid-19 outbreak broke out in 2019, the data examined showed that the Covid-19 pandemic has had a big effect on property development (Zainab, Bemgba, Dzurllkanian, & Salfarina, 2022). In order to combat with the current situation, The Government of Malaysia introduced the Home Ownership Campaign (HOC) (Bernama, 2022) and the Keluarga Malaysia Home Ownership Initiative (i-MILIKI) (Joseph & Lee, 2022) as initiative to support homebuyers and encourage the sale of unsold properties. From time to time, the policy maker shall monitor the effectiveness of the initiative introduce to the market as to ease up the numbers of overhang residential in the current market. Policy maker shall also collaborate with property developer in regulate the design guideline as to ensure the new market product will meet the market needs and homebuyer's preferences. Information gathering about the current and projected population composition in terms of families and preferred housing types will be helpful in provides a solid foundation for preparing for present and upcoming housing requirements. Such information can also be

adopted by policy-makers and property developer as a foundation point in their acting (Harry, 2011).

1.7 Chapter Summary

The general structure of the complete study and its overall direction are indicated in Chapter 1 of this study. The problem statement, research questions, research goals, and the importance of the research are all included in Chapter 1 of the study. These will guarantee that the main focus and goals of this study are understood by the readers.

Subsequently, the purpose of Chapter 2's study of related journal articles is to comprehend how similar research has developed in the past. This chapter's literature review identifies the problems with earlier study as well as the insights gained from it. Nevertheless, this chapter will develop the research's theoretical framework and further discuss the associated ideas and independent variables.

Moving forward to the research methodology, taking into account the study design, data gathering techniques, sampling strategy and study tool, will be described in chapter 3. In addition, Chapter 3 will cover the methods for measuring, processing, and analysing constructs.

Real data analysis will be performed and explained in Chapter 4. The individuals' demographic make-up will be described, and the measurement of the main trends of the constructs will be described. However, the findings of the inferential analysis and reliability analysis are further explored.

Finally, Chapter 5 presents a summary of all descriptive and inferential analyses, as well as discussions of the main research results. This brings up the usefulness of this research for practitioners and policymakers. On the other hand, the study's shortcomings are discussed along accompanied by advice for future researchers regarding the methodology, subject, and limitations.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter primarily focuses on the review of published and readily accessible information, such as journal articles, reports, websites, and books. It also includes findings from pertinent government agencies. Then, in the following chapter, a theoretical framework and theories are put forth.

2.1 Residential Market & Performance during COVID-19 Pandemic

Residential market is about the supply and demand for houses (Mang, Radzuan, & Zainal, 2018) and also known as the place for the purpose of purchase and sale of residential property as well as for rental. Residential market is always the key of the economic component of the nation as this industry is linked to other sectors or industries (Thaker & Sakaran, 2016). Ong T. S. (2013) is also found that the demand for homes drives investment in the housing sector and aids in the restoration of the GDP growth rate

In residential market, house price is depending on the size, type, location and also found related to population growth (Ong T. S., 2013). Landed property usually costs more than residential units in a high-rise development especially in the urban area such as Klang Valley. The demand for housing in Malaysia grows as the populace grows, driving up the price of housing. Prospective homebuyers can choose to buy a house from the primary or secondary market either from the property developer or the real estate agent. Brand-new properties from the property developer will be in the primary market. Buyer and seller will be entering into the sale and purchase agreement (SPA) upon transaction and Housing Development Act regulates SPA. New property is also provided with two years defect liability period upon handing over vacant possession. On the other hand, secondary market is referred to sub-sale properties or in other word refer to those that were pre-owned by

another owner previously. House in the secondary market is tangible as the buyers can see the exact property physically, inclusive the location precisely, environment, neighbours, facilities, and the amenities. Additionally, they will be able to check the unit's condition and upkeep level., simply based on “as is where is” basis. Usually, residential property purchase from the secondary market will be handed over to homebuyer much earlier compare to primary market which is paying today’s price waiting 2 to 4 years after the SPA has been signed. No doubt, buying a residential property from the primary market is significantly cheaper upfront compared to sub-sale properties in secondary market. This is concurred by (Hassan, Nobaya, & Hashim, 2022) in which the property developer may offer a rebate to homebuyer in order to lower (or zero) down the down payment.

In year 2020, COVID-19 outbreak has affected the overall property market performance and recorded a significant decline in year 2020 compared to 2019. According to NAPIC report in relate to Malaysia Property Market 2020, the Malaysian House Price Index (MHPI) reached 199.3 points in 2020, representing the lowest annual increase since 2010. Year 2020 saw annual increase in every state but Kuala Lumpur (-1.0%), Pulau Pinang (-0.1%), Selangor (-0.7%) and Sabah (-1.3%) all experienced declines in their respective populations. Despite, according to NAPIC's Malaysia Property Market 2020 report, the residential sector continued to support the market's total transactions with a 64.7% market share.

In H1 2022, More than 188,000 transactions totaling RM84.40 billion were registered in the property market, improving performance compared to the same period last year by more than 30% in both volume and value, according to Property Market First Half 2022 by NAPIC. Residential new launches, on the other hand, experienced a softening in sales performance, with new launch sales performance reported at 20,3%, slightly below H1 2021 (revised 20,6%) and H2 2021 (28,1%). This might be as a result of a substantial increase in unemployment rates during the COVID-19 outbreak, as well as numerous business closures (Balemi, Fuss, & Weigand, 2021). On the other hand, The Edge Malaysia does advise that purchasing a home from the secondary market would appear to be superior option because many house proprietors cannot make loan payments due to financial challenges caused by the epidemic and would be prepared to surrender their residences at a lower price. (Chung, Y.Y., 2021).

2.2 Main Players in Residential Market

2.2.1 The Homebuyer

Homebuyer can be a person or an organization who purchase house. House is needed for shelter and also treated as an investment for savers (Selvi, Pajo, Çakir, & Demir, 2020). Therefore, there are two types of residential property buyer which namely homebuyer and investor. Homebuyers are looking to purchase residential properties mainly for their own stay or consumption (Lim & Chang, 2018). Homebuyer decide to own a house when their family member is increasing, so a new home is indispensable (Tobi, Jasimin, & Rani, 2020). According to research by Mohammad, Nobaya, & Ahmad (2021), if homebuyer is buying a house is for their own livelihood, homebuyer will buy a house at the location where they prefer to live. Meanwhile investor is buying a house is which they will not live in but it is for generating profits through renting or appreciation (Mohammad, Nobaya, & Ahmad, 2021). Investors purchase property in hopes of generating financial returns from rental yields as well as for capital appreciation (Lim & Chang, 2018). Investors will make sure that these characteristics are appealing and appropriate for renting, attracting tenants, and appropriate for the market when purchasing investment properties.

In the earlier study by Wang & Li, (2004), the researcher found differences in housing choices among homebuyers of various ages and professions (Wang & Li, 2004). It also supported by Ismail, Halil, Abidin, & Hasim (2020) that due to various generational characteristics, each generation has distinct requirements and preferences. For example, blue-collar workers are less worried about a district's reputation than are white-collar workers, and both young and old people are more concerned about the neighborhood's safety. For people in the middle and older age brackets, but not those in the younger age bracket, living convenience is a major factor. (Wang & Li, 2004). Research finding by Ismail, Halil, Abidin, & Hasim (2020) says that the different generational characteristics resulted in different needs and preferences according to each generation. This statement concurred by other researcher, Kam, Lim, Al-Obaidi, & Lim, (2018), where they discovered that generation Y's top preferences for housing are house age, green ideas, gated and guarded neighborhoods, neighborhood cleanliness, commute time to work, and restaurant locations. Whereas, networks of community support have been discovered to be an important social and environmental component for the elderly. (Ismail, Halil, Abidin, & Hasim, 2020).

2.2.2 The Property Developer

Property developer is the organisation or individual who invests in developing or redeveloping property. The sales of properties are improved by well-known property developers who have received numerous property awards because their name is linked to current trends and knowledge. (Mohammad, Nobaya, & Ahmad, 2021). Residential property developers aiming to gain good reputations are willing to determine homebuyers' preferences in housing, upkeep the house quality, deliver the new house on time and maintain good relationship with homebuyer and good after-sales service with the homebuyers (Rahadi, Wiryono, Koesrindartoto, & Syamwil, 2015). Even some real estate developers pay attention to how consumers learn about, select, use, and dispose of goods. (Kotler, Keller, Manceau, & Dubois, 2016). This understanding will lead to better design and predictions of the housing property to be provided in the market, and thus greater success in the market (Mohammad, Nobaya, & Ahmad, 2021). This understanding also agreeable by practitioners in the property industry over time that the importance of understanding homebuyers' preference attributes relating to their products (Rahadi, Wiryono, Koesrindartoto, & Syamwil, 2015).

In Malaysia, most of the property developer preferred sell-then-build (STB) system for over 5 decades (Yusof, Shafiei, Yahya, & Ridzuan, 2010). This enables the property developer to reduce their financial burden compare to build-then-sell (BTS) system. Property developers are permitted by STB to sell homes while they are still being built and receive progress payments. Property developer has to be aware that all development usually takes long processing period to design and compliance to statutory requirement before the housing development are able to launch to the market. In which the homebuyer preference could have changed along the time before the product launch and the property developer may suffer in slow sales progress or unsold unit. Therefore, the housing sector must continue to change to accommodate the constantly shifting household tastes that drive homebuyers (Tan T. H., 2012). It is vital for property developers to focus on those significant housing-related attributes when designing houses while rationalising the others attributes. Recognising and incorporating the homebuyers' preferences into house design will attracts higher market values for the developments (Chiwuzie, Dabara, Mbagwu, Prince, & Olawuyi, 2020).

2.3 Homebuyer's Preference for Housing Attributes

Housing preferences is an interesting topic to have continuing study from time to time, from different theoretical perspectives and using various methodologies. According to (Mulliner & Algrnas, 2018), choice is different from preference, which is described as the relative attractiveness of a feature or object. Whereas preference can influence choice, choice is concerned with real behavior. (Mulliner & Algrnas, 2018). Housing preferences is defined as the desirable features and attributes of a house (Ismail, Halil, Abidin, & Hasim, 2020). Therefore, homebuyer will make decision to purchase a house according to their preference for home attributes that the homebuyer deem to be important to them and also their needs (Ismail, Halil, Abidin, & Hasim, 2020). In other word, homebuyer's preference is the key driver in decision making to buy a house (Mohammad, Nobaya, & Ahmad, 2021). Homebuyers' preference for housing attributes (or characteristics) is relatively important to the homebuyer and also as an important information the property developer to take the homebuyers' preference into consideration when designing their new product before launch it to the market.

According to the research by Tan T. H (2012), majority of the homebuyer preferred their home to be located in proximity convenient to workplace, education center, commercial area, recreation facilities and also transportation. Homebuyer also particular on the quality of surrounding area, dwelling, cost and quality of public facilities, social environment as well as pollution free in term of noise and neighbourhood prestige (Tan T. H., 2012).

2.4 Influence of COVID-19 on Homebuyer's Preferences

Before the COVID-19 pandemic, people hardly ever worked, studied, or entertained themselves at home. However, during the COVID-19 pandemic, people began to focus on meeting all of their essential physiological requirements in their homes (Kocur-Bera, 2022). Movement control order imposed by the government has raised the concerns of well-being of a person could not be achieved (Kocur-Bera, 2022). Everyone is being forced to spend more time at home, which has raised worries about household overcrowding in specific areas like the living room, bedroom, or floor area, which can result in problems with both physical and mental health. (Kamarudin, Hassan, Mohamed, Yahya, & Rashid, 2022). In other word, the lack of proper space in a house for working, learning, exercising, and privacy may increase human's stress levels.

In summary, COVID-19 pandemic has affected on the use of residential properties and also homebuyers' preferences for housing attributes (Chiwuzie, Dabara, Mbagwu, Prince, & Olawuyi, 2020). Therefore, there is a need to take into consideration of homebuyer's preference as fundamental to provide appropriate quality houses (Zavei & Jusan, 2012). Maslow's hierarchy of needs is potentially useful in explaining living environment attributes to the achievement of person-environment congruence in housing.

2.5 Housing Attributes

Several studies by researchers found various housing attributes have been identified relatively important to homebuyer's preference. In general, homebuyers' preferred housing characteristics include things like the quantity of living rooms and bedrooms, size of living rooms, bedrooms, and kitchens, the number of toilets and bathrooms, the level of interior and exterior decoration, the perimeter fence, and the amount of available space among each other. (Chiwuzie, Dabara, Mbagwu, Prince, & Olawuyi, 2020). Numerous studies have shown that housing characteristics include everything from intrinsic housing characteristics like house size, interior living spaces, design and functionality, space, and internal design to extrinsic housing characteristics like exterior design and appearance, building quality and materials, and exterior space to neighbourhood and locational indicators like environmental qualities. (Tan T. H., 2012) (Mulliner & Algrnas, 2018). Some researchers have classified several housing attributes into different categories when studying homebuyers' preferences. According to (Tan T. H., 2012), housing attributes can be categories into locational, neighbourhood, structural and socio-cultural housing attributes. However, this study will be focusing on three categories of housing attributes namely locational, neighbourhood and structural housing attributes as summarised from literature finding based on majority significant housing attribute identified by previous researchers (refer to Table 2.1).

TABLE 2.1: HOUSING ATTRIBUTE IDENTIFIED BY PREVIOUS RESEARCHERS

Attribute Category	Housing Attribute	Reference
Locational attributes	Distance to the workplace	Tan T. H., 2012; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; Tan T. H. , 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Thaker & Sakaran, 2016; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Mulyano, Rahadi, & Amaliah, 2020; Chong & Omkar, 2017; Mang, Radzuan, & Zainal, 2018
	Distance to the shops	Tan T. H., 2012; Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Tan T.H, 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Thaker & Sakaran, 2016; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Mulyano, Rahadi, & Amaliah, 2020; Mang, Zainal, & Mat Radzuan, 2020; Chong & Omkar, 2017; Mang, Radzuan, & Zainal, 2018
	Distance to the schools; Day care	Tan T. H., 2012; Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; Tan T.H, 2013; Thaker & Sakaran, 2016; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Mulyano, Rahadi, & Amaliah, 2020; Mang, Zainal, & Mat Radzuan, 2020; Mang, Radzuan, & Zainal, 2018
	Distance to the recreational facilities / Amenities	Tan T. H., 2012; Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; Tan T.H, 2013; Thaker & Sakaran, 2016; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Ismail, Halil, Abidin, & Hasim, 2020
	Distance to the public transportation centers	Tan T. H., 2012; Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Soon & Tan, 2019; Tan T.H, 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Mulyano,

		Rahadi, & Amaliah, 2020; Wang & Li, 2004; Wang & Li, 2006; Mang, Radzuan, & Zainal, 2018
	Distance to family	Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Mohanna & Alqahtany, 2019; Ismail, Halil, Abidin, & Hasim, 2020
	Distance to the hospitals/clinics	Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Mohanna & Alqahtany, 2019; Mulyano, Rahadi, & Amaliah, 2020; Ismail, Halil, Abidin, & Hasim, 2020; Mang, Radzuan, & Zainal, 2018
	Distance to the highway / accessibility	Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Mohanna & Alqahtany, 2019; Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Mulyano, Rahadi, & Amaliah, 2020; Mang, Zainal, & Mat Radzuan, 2020; Wang & Li, 2004; Wang & Li, 2006
Neighbourhood attributes	Crime rate / Security	Tan T. H., 2012; Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Tan T.H., 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Mang, Zainal, & Mat Radzuan, 2020; Wang & Li, 2004; Ismail, Halil, Abidin, & Hasim, 2020; Wang & Li, 2006; El-Nachar, 2011; Chong & Omkar, 2017
	Level of neighbourhood pollution	Tan T. H., 2012; Mulliner & Algrnas, 2018; Tan T. H., 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019
	Neighbourhood cleanliness	Tan T. H., 2012; Mulliner & Algrnas, 2018; Tan T. H., 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Kam, Lim, Al-Obaidi, & Lim, 2018
	Whether or not the neighbourhood is gated	Tan T. H., 2012; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Soon & Tan, 2019; Tan T. H., 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019
	Land not flood prone	Mulliner & Algrnas, 2018
	Neighbourhood prestige	Mulliner & Algrnas, 2018; Ling, Nurul, & Siti, 2016; Mohanna & Alqahtany, 2019; Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Wang & Li, 2004; Wang & Li, 2006

Structural attributes	number of bedrooms	Tan T. H., 2012; Mulliner & Algrnas, 2018; Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; Tan T. H., 2013; Moghimi & Jusan, 2015; Mulyano, Rahadi, & Amaliah, 2020; Mang, Zainal, & Mat Radzuan, 2020
	number of bathrooms	Tan T. H., 2012; Mohanna & Alqahtany, 2019; Tan T. H., 2013; Moghimi & Jusan, 2015; Mang, Zainal, & Mat Radzuan, 2020
	size of the living area	Tan T. H., 2012; Mohanna & Alqahtany, 2019; Tan T. H., 2013; Moghimi & Jusan, 2015
	size of the kitchen area	Tan T. H., 2012; Mohanna & Alqahtany, 2019; Tan T. H., 2013; Moghimi & Jusan, 2015
	size of the house (Build-up)	Tan T. H., 2012; Mulliner & Algrnas, 2018; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; (Tan T. H., 2013; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Mulyano, Rahadi, & Amaliah, 2020; Mang, Zainal, & Mat Radzuan, 2020
	whether or not the house is “green” (Eco)	Tan T. H., 2012; Mulliner & Algrnas, 2018; Tan T. , 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; El-Nachar, 2011
	House type / layout	Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; Lim & Chang, 2018; Moghimi & Jusan, 2015; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Ismail, Halil, Abidin, & Hasim, 2020

2.5.1 Locational attributes of housing

Locational attribute of housing refers as the closeness to preferable or not preferable facilities which has influences on homebuyer's decision (Al-Nahdi, Ghazzawi, & Bakar, 2015). Distance to the workplace, schools, retail establishments, recreation centers, and public transit stations are important housing attributes for homebuyers, according to (Tan T. H., 2012). Property developers is recommended by (Tan T. H., 2012) to offer quality self-contained residential area within a functional residential development in the neighbourhood where homebuyers able to fulfil their needs within the neighbourhood such as to work opportunity and recreation needs. This is concurred by (Ling, Nurul, & Siti, 2016) that due to the close closeness to their place of employment and other amenities that are more easily accessible in urban areas, homebuyers choose to live in urban areas. The research finding by (Chong & Omkar, 2017) also show that locational attribute is significant positive relationship with homebuyers' decision making and significantly to the determination of a homebuyer's preferences when purchasing a house in Kuala Lumpur (Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019). Furthermore, homebuyer is emphasising on strategic location for the house they invested that could increase the value of their house (Mulyano, Rahadi, & Amaliah, 2020).

2.5.2 Neighbourhood attributes of housing

Research study by (Tan T. H., 2012) stated that the previous study on neighbourhood characteristics of housing covered topics like air quality, visibility of trees and water, and local crime. Further elaborate by (Tan T. H., 2012) that homebuyers are more likely to pay more for a house if it is in a decent neighbourhood because they value it more. This is assuming that the neighbourhood has good environmental qualities. A good neighbourhood is referring to lower crime rate (Crime), lower level of neighbourhood pollution, good neighbourhood cleanliness and gated and guarded neighbourhood (Tan T. H., 2012). It also agreed by (Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019) that homebuyers will take into account safety, noise from the neighbourhood, greenery, pollution levels, and the existence of gated and guarded security before selecting their home. Study by (Chong & Omkar, 2017) also supported that neighbourhood attribute has significant positive relationship with consumer decision making which is consistent with studies by (Mulliner & Algrnas, 2018) indicate that homebuyers place a premium on neighbourhood qualities (such as sanitation and safety). Neighbourhood attribute is also state by (Thaker & Sakaran, 2016) as one of the substantial focuses particular by first-time or second-time homebuyers

in buying residential property especially on neighbourhood attribute such as lifestyle interconnectedness with the community surrounding the area.

2.5.3 Structural attributes of housing

Structural attribute of the house is related to the number of rooms and bathrooms, the size of the living area, the size of the kitchen area, the size of the house, and whether the house is "green" (Eco) (Tan T. H., 2012). In Saudi, (Ameen & Ali, 2019) highlighted that the key structure attribute (housing characteristics) is the home type, the lot and floor areas, the house price, number of rooms, baths and kitchens and the HVAC system. In the research by (Al-Nahdi, Ghazzawi, & Bakar, 2015) mentioned that one of the structural attributes is relate the size of house and also the living space which are the significant attribute to homebuyer in decision to purchasing property. As opposed to this, (Tan T. H., 2012) discovered that home ownership was significantly correlated with the number of bedrooms.

In term of house typology, terrace, semi-detached and detached house are categorised as landed residential properties, typically one to three storey buildings according to NAPIC (Lim & Chang, 2018). Whereas high-rise or multi-level residential is refer to Penthouse, Condominium/ Serviced Residence, Duplex/ Studio, Apartment/ Flat, SoHo/ SoVo/ SoFo. In Malaysia context, landed property remain the most preferable choice as compared with multi-storey property by homebuyers for any demographic group as mentioned in the research by (Ling, Nurul, & Siti, 2016). This is also concurred by (Lim & Chang, 2018) that homebuyer's preference in Malaysia is more towards double-storey terrace and condominium.

Covid-19 pandemic has affected the homebuyer decisions in selecting and way of utilizing the indoor spaces (Kamarudin, Hassan, Mohamed, Yahya, & Rashid, 2022). The researchers further elaborate that homebuyer are now more particular on house layout after taken into consideration of the room for isolation and quarantine as well as to accommodate different needs in their home, such as WFH and home-based teaching and learning activities.

2.6 Social Demographic Characteristics and Housing Preference

Homebuyers' preferences are influenced by a number of variables, including their socioeconomic demographic makeup (Kam, Lim, Al-Obaidi, & Lim, 2018). Over the past few decades, the demographics of homebuyers have had an impact on property demand (Mang, Radzuan, & Zainal, 2018). Due to the variety of housing requirements and

preferences, demographic changes will have an impact on the housing market (Ismail, Halil, Abidin, & Hasim, 2020).

Buying a house is very difficult for most of the Malaysians (Mohammad, Nobaya, & Ahmad, 2021). High prices for houses have made it difficult for prospective homebuyers especially first-time homebuyer to own a house (Tan T. H., 2012) as a significant portion of the younger generation cannot manage to buy a home due to their current income level (Ling, Nurul, & Siti, 2016). During COVID-19 pandemic, the Income level of people has significantly disrupted after series of movement restriction control (Shah, et al., 2020). In this regard, house price and financial of homebuyer are also the factor influencing housing preference for homebuyer.

2.6.1 Social demographic characteristics

Numerous researchers' empirical studies have shown that homeownership is highly correlated with education, various life stages, the existence of children, and employment types (Tan T. H., 2012). According to the research by (Ling, Nurul, & Siti, 2016), housing choices are influenced by socioeconomic and demographic factors like family size, lifestyle, values, and family patterns, as well as factors like age, education level, and type of job structure. It also mentioned by (Mang, Radzuan, & Zainal, 2018) that the housing preferences are depends on homebuyers' demographic characteristics such as age, gender, and occupation and further added on with family type and lifestyle in the research by (Selvi, Pajo, Çakir, & Demir, 2020). It also concurred by (Farraz & Barus, 2019) that the demographic and socioeconomic factors affect housing preferences. Furthermore, (Tan T. H., 2012) mentioned that household size and marital status are closely correlated with the family life cycle. This explained by (Mang, Radzuan, & Zainal, 2018) that the housing demand will be increased when the population started to live separately or in much smaller families. In other word, when the household size reduce (live separately), it will increase of the new household number, which then lead to the demand for more housing over the past decades. This supported the example also given by (Tan T. H., 2012) in his research that the large households may purchase more housing compare to smaller households.

The population, or demographics, is the main determinant of property development, especially for housing provisions that are closely related to housing supply and demand (Ismail, Halil, Abidin, & Hasim, 2020). The total population of Malaysia is projected to reach 32.7 million in 2022, according to the DOSM report on population size and yearly

population growth rate. However, the older age group in Malaysia is increasing every year. Malaysia has an aging population, according to the UN. The proportion of people aged 15 to 64 who are working rose from 69.5 percent in 2022 to 69.4 percent in 2021, but this working age group is ultimately decreasing because of the proportion of male foreign workers who are not citizens. The percentage of the population aged 65 and over (old age) rose from 7.0 percent to 7.3 percent for the same time. In this regard, property developers should be aware of changes in a nation's demographic composition in this respect because they may have a significant impact on trends in housing and real estate (Mohammad, Nobaya, & Ahmad, 2021).

It is undeniable that property developer overlooked on the demographic statistics though it is very important factor, which is influencing the pricing strategies and the type of houses to be supplied (Mohammad, Nobaya, & Ahmad, 2021). Referring to research by (Lim & Chang, 2018), the future housing supply need to focus on demographic and family profile when planning for housing supply. Basing on this concern, property developer shall invest resources to assess the socio-demographic profiling of the prospect homebuyer periodically in order to decide on the type of residential property to be offered in the market.

In Taiwan, according to the studies by (Tsou & Sun, 2021), homeownership is primary consideration for young couples and young families due to their need in the early stages of their life cycle and yet to achieve financially stability and either have or going to have children. Whereas full-nest families and three-generation families are usually the owners of their current residence and they also have higher intension to change residences. Furthermore, the full-nest families who have stable family structure and financial stability will increase the house purchase intension as an investment. In other word, family with children growing up, the higher intension to purchasing a house as an investment (refer table 2.2).

TABLE 2.2: DEFINITION OF LIFE CYCLE TYPES BY (TSOU & SUN, 2021)

Life Cycle Type	Definition
Young Singles	There is only one single family member and the homebuyer under the age of 35 may be unmarried, divorced (separated), or widowed.
Young Couples (without children)	The homebuyer and his/her spouse are legally married. The homebuyer is under the age of 35 and has no children.
Young Families	The homebuyer and his/her spouse are legally married. The homebuyer is under the age of 35 and has unmarried children.
Full-Nest Families	The homebuyer and his/her spouse are legally married. The homebuyer is between 36–60 years old and has unmarried children.
Mature Families	The homebuyer and his/her spouse are legally married and have married children.
Middle-Aged Singles	There is only one single member, and the homebuyer is over 36 years old, who may be unmarried, divorced (separate), or widowed.
Middle-Aged Couples (Without Children)	The homebuyer and his/her spouse are legally married. The homebuyer is over 36 years old and has no children.
Three-Generation Families	The homebuyer and his/her spouse are legally married, and residing with family members that include children, parents, grandparents, or grandchildren.
Others	The homebuyer may not be among those listed above, but may belong to a skipped generation family, step-parent family, adoptive family, same-sex family, second marriage (without legal marriage), and cohabitation relationship of relatives (friends).

2.6.2 Financial Capabilities

Financial capacity is influenced by the financing costs, salary level, cost of the home, and the capacity to obtain sufficient financing (Thaker & Sakaran, 2016). The cost of housing, which is typically the single biggest expense in household budgets, has a direct impact on the stability of the household's finances (Baqutayan, Ariffin, & Raji, 2015). According to Financial Stability Review year 2019 by Bank Negara Malaysia (BNM), 76% of people in Malaysia are unable to sustain living expenses for more than 3 months once unemployed. On top of that, there is also record showing 65% of borrowers already possess either car or personal loans, which reduce their capacity to take on new borrowings for housing (Bank Negara Malaysia, 2021). On the other hand, in year 2020, the Household Income Estimates and Incidence of Poverty Report year 2020 record shows that compared to 2019, the average gross monthly revenue for households fell by negative 10.3%, to RM7,089, from RM7,901 (Department of Statistics, Malaysia, 2021). The decline in household income is

due to the loss or reduction of income during MCO. When the economic activities resumed in second half of year 2021, the average monthly salary and pay increased by 3.5% to RM3,037 after declining for the first time ever the previous year (2020: -9.0%; RM2,933). However, (Bank Negara Malaysia, 2021) shows the income grew rate is 2.1% per annum while house price grew rate is 4.1% increase per annum. In other word, it means income grew is slower than house price

In term of house price, the affordability of houses in Klang Valley were in the brackets of “severely unaffordable” markets (Lim & Chang, 2018). Refer to the NAPIC report on the property market for the first half of 2022 for evidence that house values are continuing to rise at a slow rate. The Malaysian House Price Index (MHPI) kept rising, albeit at a slower rate. The MHPI was at 203.5 points as of Q2 2022, up 0.5% annually. However, compared to Q1 2022, the index points fell by 1.2%. (205.9 points). Despite, the overall residential homeownership rate in Malaysia is still on improving trend but more toward affordable market according to the Property Market Activity H1 2022 by NAPIC (NAPIC, 2022).

Further refer to the House Price to Income Ration Rating by BNM, a house is considered affordable when house price over annual income is less than 3 times. A household earning shall be at least RM100,000 yearly or RM8,333 monthly in order to afford a house priced up to RM300,000. About 76% of households in Malaysia, income level is less than RM8,333 a month. Albeit only 36% of newly-launched units in the market are priced lesser than RM300,000 as recorded by (Bank Negara Malaysia, 2021) and 23.9% as recording in Property Market Status H1 2022 by (NAPIC, 2022).

In this regard, property developer shall take into consideration of the housing price and income level of their target group of homebuyer and rationalising on the homebuyer preference for housing attributes in order to ensure their product are sellable in the market.

2.7 Theories in Explaining Residential Preference

In terms of philosophy, a person must have a roof over their head because it has been established as one of the most fundamental requirements and wants of human necessities (Thaker & Sakaran, 2016). Achieving homebuyer's need is a necessity in housing delivery. Therefore, the property developer and design consultant shall study the personal motivation in the housing decision making process. Maslow's Hierarchy of Need theory can be used to explain the homebuyer's motivation in housing. Different levels of homebuyer's needs implicit different levels of expectations in housing preference, then lead to different house attributes (Zavei & Jusan, 2012). Therefore, this study will be discussing a theoretical framework and summarize the relationship between the homebuyer's preference and the housing's attributes.

2.7.1 Maslow's Hierarchy of Needs

“Maslow's hierarchy of needs” is a psychological theory of motivation that comprises a five-tiered framework of human needs which is commonly referred to levels in a pyramid's tiers. The prerequisites, in ascending order of rank, are physiological (such as food and clothing), safe (such as job stability), love and belonging demands (such as friendship), esteem, and self-actualization. According to Maslow, once one need is met, it inspires a person to fulfil the next level, and so on, until they reach the most complex need at the summit of the pyramid. The base or lowest level of the pyramid is made up of physiological needs, which pertain to a person's basic demands for food, water, sleep, and homeostasis. The person will move up one level, to safety and security requirements, which include health and wellness, once these needs have been met. Then the subsequent level is the need for love and belonging. A person satisfies these requirements through friendships, social networks, familial ties, and romantic connections. Once love and belonging needs has been satisfied, the individual will desire for self-esteem which is the next level up. A feeling of recognition of an individual's abilities, including academic, personal, and professional accomplishments, it means this individual is reflects this need. Self-actualization, which is defined as the sense of achievement at the top of the hierarchy of needs, is the highest level. When a person achieves self-actualization, what other people perceive becomes less significant to them. The achievement of personal objectives has taken the place of the requirement for approval from others. For Maslow, this need is fundamental to progress to the higher needs. In this regard, an individual's need for shelter is a crucial survival need that affects how well humans operate. (Holland, 2018).

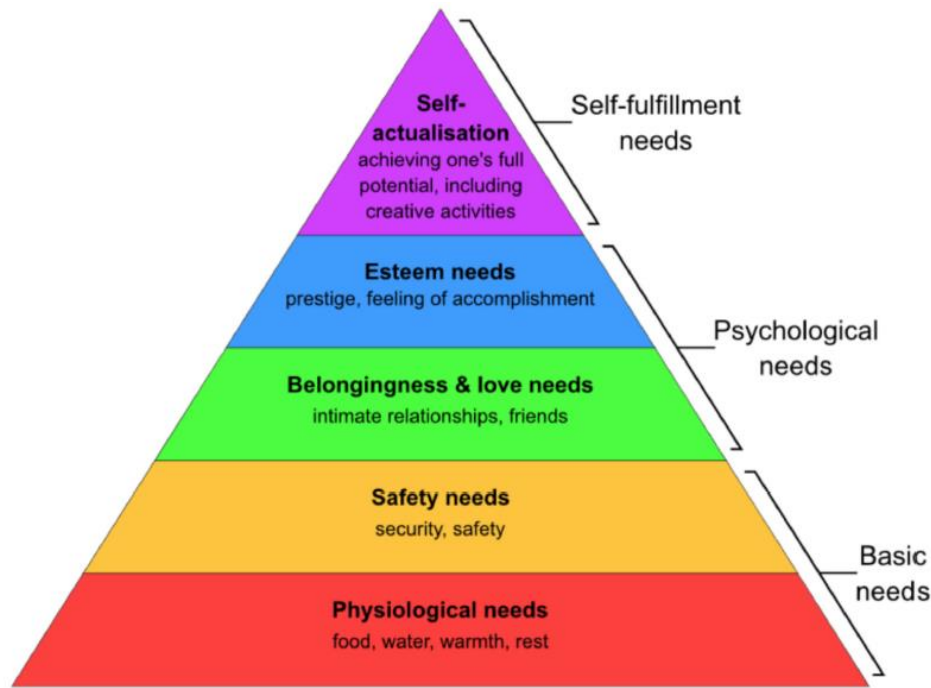


FIGURE 2.1: MASLOW'S HIERARCHY OF NEEDS

Shelter as one of the human's basic subsistence which is the need for a place to live (Djaja, 2020). A person's wellbeing is significantly influenced by their home, which helps them achieve their goals for protection and security, as well as their needs for love and a sense of belonging (Baqtayan, Ariffin, & Raji, 2015). The hierarchy of requirements proposed by Maslow lends credence to the idea that a place to live is a fundamental need (Holland, 2018). Housing needs are consistent with Maslow's hierarchy of needs theory, according to (Tsou & Sun, 2021), which gives priority to the lower degree of demand. For example, since a household's income has not yet accumulated to a certain point and cannot be invested, meeting the demand for owner occupancy is given higher precedence for the lower the household's income group (Tsou & Sun, 2021). For a person to grow and realize their potential and capacities in society, it is crucial to meet their basic requirements (Zavei & Jusan, 2012). Zavei & Jusan, (2012) further elaborate that the basic role of a house is to provide a space for residence only in the initial stage. But in later stage, human choose to own a house is to satisfy their needs as well as convenience of residence. The similar explanation by (Thaker & Sakaran, 2016), homeownership has been regarded as one of the essential components of good living standards because it is a basic need. When a person's basic material requirements are met, their desire to express their unique personalities inside the home grows. (Kim & Kim, 2017). In other words, individual values the needs for self-actualization will be emphasized (Kim & Kim, 2017).

2.8 Hypotheses

A study hypothesis is a specific, clear, and verifiable claim or prediction of what a scientific research study's probable outcome will be depending on a specific population characteristic, such as alleged discrepancies between groups regarding a particular measure or connections between variables (Lavrakas, 2008).

In this research, the majority of human daily activities and routines have been significantly impacted by the COVID-19 pandemic. Based on the literature review in the previous chapter, the hypothesis shall be formulated and discuss in the following subsection.

- H1: Homebuyers' preference towards locational attributes can be differ across socio-demographic characteristics
- H2: Homebuyers' preference towards neighbourhood attributes can be differ across socio-demographic characteristics
- H3: Homebuyers' preference towards structural attributes can be differ across socio-demographic characteristics

2.9 Conclusion

As conclusion, this chapter manage to identify the homebuyers' preference for housing attribute through literature review. There are three housing attributes identified for this study namely locational attribute, neighbourhood attribute and structural attribute. However, homebuyers' preference for these housing attribute could be influenced by social demographic factor and financial capabilities factor. In this chapter, terms and ideas that are important to this study are defined and explained. Additionally, the subject study adopted Maslow's Hierarchy of Needs theory and conducted a systematic review of pertinent literature. On the basis of that, the suggested theoretical framework is presented and explained, and then the study's hypotheses are developed.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

The methodologies to be used in analyzing the data gathered from respondents using survey questionnaires that were distributed to respondents will be explained in this chapter. The methodologies used will be described in the subsection that follows and include data processing and analysis as well as research design, sampling tactics, data collection methods, research instrumentation, constructs measurement, and questionnaire design, and pre-test of questionnaire study.

3.1 Research Design

The purpose of this research to quantitatively identify the residential preference of the homebuyer impact after Covid-19 pandemic. The effect of the variables namely social-demographic factor, financial capabilities factor, locational attributes, neighbourhood attributes and structural attributes will be tested through this research.

A survey will be performed with a questionnaire created using measurement constructs from earlier studies in order to accomplish the aforementioned goals. In spite of that, the measurement constructs gathered based on other researchers' studies in the past will be adjusted to suit the current research purpose.

3.1.1 Quantitative Research

Quantitative approach is referring as positivist research where numeric data is collected, and then analysed using statistical tests. Positivism studies is where behaviour can be explained by causality. In other word, conduct study to understand patterns in human activities and make predictions using methods to identify, measure and state accurately relationship among the variables.

Responsibility of the researcher in positivist investigations is restricted to the gathering and unbiased evaluation of data. In other words, when performing the study, the researcher acts as an objective analyst and dissociates himself or herself from personal values. (Dudovskiy, 2022). The results of these investigations are frequently observable and quantifiable. In accordance with the philosophy of positivism, which is held by natural scientists, observable social fact to produce what seem to be laws as generalizations (Saunders, Bristow, Lewis, & Thornhill, 2015).

This study employs a quantitative research methodology to investigate the relationship between the independent and dependent factors. This approach is thought to suit this research's approach more effectively. It is being classified to determine residential preferences in relate to social-demographic factor, financial capabilities factor and homebuyers' preferences for locational attributes, neighbourhood attributes and structural attributes during the Covid-19 pandemic in Malaysia.

3.1.2 Research Flowchart

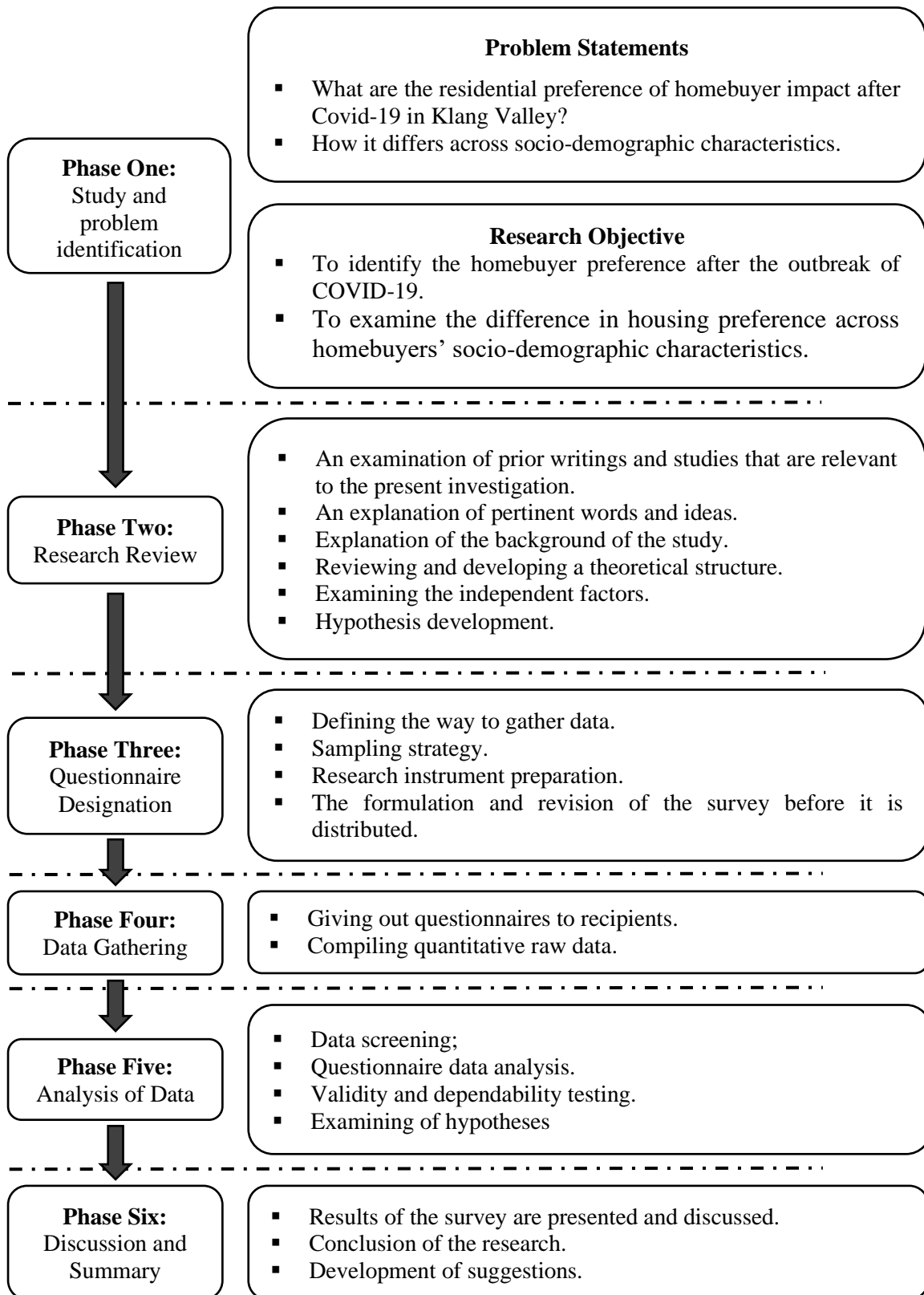


FIGURE 3.1: RESEARCH FLOW CHART

3.2 Data Collection Method

The instrument to be used to collect data will be done through online survey using Microsoft form. The survey link will be generated and distributed to the targeted group of respondents which are Malaysian, 20 years old and above who had proper financially support / sound financial health. Questionnaire will be distributed using electronic platforms such as Facebook and WhatsApp due to time and cost constrains in conducting physical survey for this study as well as concern on potential risk of COVID-19 for face-to-face interview. Respondent were recruited via convenient sampling method.

In order to participate in the survey questionnaires, respondents will be asked for their permission, which will be taken into account as part of the research's ethical considerations. After receiving a sufficient number of answers, the survey link will be closed and the responses' data will be gathered. Requirements of the survey will be informed to the respondent before the respondent begin with the survey questionnaire.

Then, in order to reduce unfavourable results, data cleaning will be done if there are instances of incomplete surveys and lacking data on the questionnaires. This will be conducted through box-whisker plot available in SPSS- Statistical Package for identifying outliers. Subsequent analysis will be conducted using DATAtab platform .

3.2.1 Primary Data

Primary data are the fresh data that the researcher has gathered through experiments, interviews, and surveys that are specifically intended to help the researcher comprehend and address the research issue at hand (Sulbha, 2022). The accuracy and reliability of primary data is much higher compare to secondary data (Sulbha, 2022).

Data of this research was conducted through online survey instrument as to learn about the residential preference which impact after Covid-19 pandemic. In this regards, online survey questionnaires will be distributed to target group of respondents. In view of that, personal identification questions have been incorporated into the questionnaire as to avoid the issue of fraudulent responses.

3.3 Sampling Design

Practicality of survey shall be considered in research study as it subjects to cost and time constraint. Performing survey to the entire population is inadequate as the population was form by different demographic group such as age which shall be appropriate for the study. Moreover, survey is relying on the volunteers within the population to participate in the research study. In view of time and cost constraint of this research, convenience sampling will be used for this study although it may not be generalisable to the population of interest. However, the findings can be used to represent the population provided with sufficiently large sample size (Sekaran & Bougie, 2016). Furthermore, the data collection shall be just once over a period of time for answering the research questions (Sekaran & Bougie, 2016). In relation to this study, the questionnaires will be distributed and collect within two weeks or latest by end of February 2023 in order to meet the submission schedule of this research.

3.3.1 Sampling Target & Location

Section 11 of the Contract Act states that when a person reaches the age of majority under the laws to which they are subject, provided they are of sound mind and are not otherwise prohibited from contracting by those laws, they are competent to enter into contracts. According to the Malaysian Contract Act of 1950, a person who has reached the age of majority is able to engage into a contract. According to clause 2 of the Age of Majority Act of 1971, a person who is under the age of 18 is considered a minor in Malaysia. In other words, the age of majority of an individual is at the age of 18. However, the age group within 18 to 20 years old is yet to consider as financially sound / stable as they could be student or newly enter to the working life. In view of the financial capabilities of respondents, therefore, the population is targeting individuals with the age 20 years old and above, currently living or going to migrate to Klang Valley.

3.3.2 Sampling Technique

There are two kinds of sampling methods which is probability and non-probability sampling methods. A random selection technique called probability sampling enables scholars to draw a statistical inference. While non-probability sampling enables researchers to gather data based on convenience or other predetermined criteria, it is a non-random selection technique.

According to (Sekaran & Bougie, 2016), Convenience sampling and purposeful sampling are two types of non-probability sampling. As this research is intended to be completed quickly and at a low expense to the author, convenience sampling will be used in this study. However, the disadvantages of this sampling technique could be receiving a high level of sampling error. Therefore, proper screening to the data collects using box-whisker plot shall be perform in order to increase accuracy of study.

3.3.3 Sampling Size

According to (Ong & Choon, 2018), there were about 7.2 million people reside in Klang Valley, or equivalent to one-fifth of total population in Malaysia. Further refer to the record by DOSM, the total population in Federal Territory of Kuala Lumpur, Putrajaya, Gombak, Petaling, Klang and Hulu Langat were increased and estimated at 7.8 million people which equivalent to 24% of total population in Malaysia (Department of Statistic Malaysia , 2022). Therefore, careful consideration of sample size is necessary because it will affect statistical characteristics like the ability to draw conclusions and estimation accuracy (Taherdoost, 2017).

Refer to (Taherdoost, 2017), the sample size will be decided based on the 95 percent degree of confidence. (0.05: a Z value equal to 1.96). Additionally, because it maximizes variance and yields the largest sample size, researchers should use 50% as their approximation of p. E is the researcher's tolerance for risk or the margin of error (the degree of accuracy). For example, the plus or minus figure reported in newspaper poll results. A 5% margin of error is acceptable in social studies (Taherdoost, 2017).

$$n = \frac{p(100-p)z^2}{E^2}$$

EQUATION 3.1: SAMPLE SIZE FORMULA (TAHERDOOST, 2017)

Based on this guideline, the sample size suggested will be at 384 numbers. Further refer to Roscoe's (1975) guidelines, For the majority of behavioral studies, Roscoe recommended that a sample size greater than 30 and less than 500 is appropriate, whereas a sample size greater than 500 may result in a Type II error (Mumtaz, et al., 2020). Moreover, a sample between 160 and 300 valid observations is well suited for multivariate statistical analysis techniques (Mumtaz, et al., 2020).

3.4 Research Instrument

Research instruments are useful tools that help researchers gather the data they need. Various options include interviews, surveys, observations, focus-group interviews and content analysis (Birmingham & Wilkinson, 2003). Survey questionnaires will be the research instrument used in this study to determine how the Covid-19 impact on residential preference for housing attributes in Klang Valley.

3.4.1 Questionnaire Design

The questionnaire's questions were all developed using the results of the literature study. There are five parts in the questionnaire. The respondents were asked about their backgrounds and demographics in the first part, while preference variables were the focus of the following sections. The question will be formed either in an open-ended question or using closed-ended questions such as 5-point Likert scale model. The Likert Scale will be ranging from agreement (example: strongly disagree, disagree, neutral, agree, to strongly agree) or important level (example: not applicable, least important, less important, neutral, important to most important). The questions in the questionnaire cover the following aspects:

- a) Socio-economic background (e.g. gender, income, education, employment, homeownership, etc.);
- b) Housing preferences which will be group into locational attribute, neighbourhood attributes and structural attributes.

3.4.2 Variables and Respective Measurement Statement

TABLE 3.1: HOUSING ATTRIBUTES IDENTIFIED FROM LITERATURE REVIEW

Attribute Category	Housing Attribute	Reference
Locational attributes	Distance to the workplace	Tan T. H., 2012; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; Tan T. H., 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Thaker & Sakaran, 2016; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Mulyano, Rahadi, & Amaliah, 2020; Chong & Omkar, 2017; Mang, Radzuan, & Zainal, 2018
	Distance to the shops	Tan T. H., 2012; Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Tan T. H., 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Thaker & Sakaran, 2016; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Mulyano, Rahadi, & Amaliah, 2020; Mang, Zainal, & Mat Radzuan, 2020; Chong & Omkar, 2017; Mang, Radzuan, & Zainal, 2018
	Distance to the schools; Day care	Tan T. H., 2012; Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; Tan T. H., 2013; Thaker & Sakaran, 2016; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Mulyano, Rahadi, & Amaliah, 2020; Mang, Zainal, & Mat Radzuan, 2020; Mang, Radzuan, & Zainal, 2018

	Distance to the recreational facilities / Amenities	Tan T. H., 2012; Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; Tan T. H., 2013; Thaker & Sakaran, 2016; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Ismail, Halil, Abidin, & Hasim, 2020
	Distance to the public transportation centers	Tan T. H., 2012; Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Soon & Tan, 2019; Tan T. H., 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Mulyano, Rahadi, & Amaliah, 2020; Wang & Li, 2004; Wang & Li, 2006; Mang, Radzuan, & Zainal, 2018
	Distance to family	Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Mohanna & Alqahtany, 2019; Ismail, Halil, Abidin, & Hasim, 2020
	Distance to the hospitals/clinics (healthcare).	Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Mohanna & Alqahtany, 2019; Mulyano, Rahadi, & Amaliah, 2020; Ismail, Halil, Abidin, & Hasim, 2020; Mang, Radzuan, & Zainal, 2018
	Distance to the highway / accessibility	Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Ling, Nurul, & Siti, 2016; Mohanna & Alqahtany, 2019; Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Mulyano, Rahadi, & Amaliah, 2020; Mang, Zainal, & Mat Radzuan, 2020; Wang & Li, 2004; Wang & Li, 2006
Neighbourhood /Environmental attributes	Crime rate (Crime)	Tan T. H., 2012; Mulliner & Algrnas, 2018; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Tan T. H, 2013); Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Mang, Zainal, & Mat Radzuan, 2020; Wang

		& Li, 2004; Ismail, Halil, Abidin, & Hasim, 2020; Wang & Li, 2006; El-Nachar, 2011; Chong & Omkar, 2017
	Level of neighbourhood pollution (Pollution),	Tan T. H., 2012; Mulliner & Algrnas, 2018; Tan T. H, 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019
	Neighbourhood cleanliness (Cleanliness)	Tan T. H., 2012; Mulliner & Algrnas, 2018; Tan T. H, 2013; Kam, Lim, Al-Obaidi, & Lim, 2018
	Whether or not the neighbourhood is gated (Guarded)	Tan T. H., 2012; Muhammad Zamri, Yaacob, & Mohd Suki, 2022; Soon & Tan, 2019; Tan T. H, 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019
	Land not flood prone	Mulliner & Algrnas, 2018
	Neighbourhood prestige	Mulliner & Algrnas, 2018; Ling, Nurul, & Siti, 2016; Mohanna & Alqahtany, 2019; Kam, Lim, Al-Obaidi, & Lim, 2018; Thanaraju, Khan, Juhari, Sivanathan, & Khair, 2019; Wang & Li, 2004; Wang & Li, 2006
Structural attributes	number of bedrooms	Tan T. H., 2012; Mulliner & Algrnas, 2018; Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; Tan T. H, 2013; Moghimi & Jusan, 2015; Mulyano, Rahadi, & Amaliah, 2020; Mang, Zainal, & Mat Radzuan, 2020
	number of bathrooms	Tan T. H., 2012; Mohanna & Alqahtany, 2019; Tan T. H, 2013; Moghimi & Jusan, 2015; Mang, Zainal, & Mat Radzuan, 2020

size of the living area	Tan T. H., 2012; Mohanna & Alqahtany, 2019; Tan T. H, 2013; Moghimi & Jusan, 2015
size of the kitchen area	Tan T. H., 2012; Mohanna & Alqahtany, 2019; Tan T. H, 2013; Moghimi & Jusan, 2015
size of the house (Build-up)	Tan T. H., 2012; Mulliner & Algrnas, 2018; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; Tan T. H, 2013; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Mulyano, Rahadi, & Amaliah, 2020; Mang, Zainal, & Mat Radzuan, 2020
whether or not the house is “green” (Eco)	Tan T. H., 2012; Mulliner & Algrnas, 2018; Tan T. H, 2013; Kam, Lim, Al-Obaidi, & Lim, 2018; El-Nachar, 2011
House type / layout	Ling, Nurul, & Siti, 2016; Soon & Tan, 2019; Mohanna & Alqahtany, 2019; Lim & Chang, 2018; Moghimi & Jusan, 2015; Abdullah, Mohd Nor, Jumadi, & Arshad, 2012; Ismail, Halil, Abidin, & Hasim, 2020

3.5 Pre-test of Questionnaire

Pre-test of questionnaire refers to small versions of a complete-scale study along with the specific pre-examine of a particular research instrument (Van Teijlingen & Hundley, 2010). Moreover, pre-test of questionnaire is important element of a good study design. By performing a pre-test of questionnaire, guarantee success in the main study is not guarantee secured, but it does helps to increase the likelihood (Van Teijlingen & Hundley, 2010). By completing a pre-test questionnaire, researchers can also become acquainted with the goals, methods, and protocols of the study.

As a feasibility procedure to spot any problems that may arise during the subsequent research stages, a pre-test of the questionnaire will be performed for the initial questionnaire survey created for this study. Following the pre-test of the questionnaire, the main issue, such as a typographical mistake, found based on the feedback of the pre-test of the questionnaire respondents will be taken into account and updated. The length of time needed to complete the survey is deemed fair because respondents typically took between 10 and 15 minutes to finish it for the pre-test of questionnaire.

3.6 Data Analysis

The data collected in this study will be analysed using Frequency, Mann-Whitney U-Test, and Kruskal-Wallis Test as available in Statistical Package of DATAtab. The purpose of the analysis is to investigate the residential preferences among target population for the residential properties within Klang Valley. The findings will be analysed and relate it to the targeted population's residential preferences within Klang Valley according to their demographic status.

3.7 Findings Presentation

Housing preference by the group of respondents will be summarised according to the respondents' socio-demographic characteristic. The result of housing preference will be presented in frequency or mean rank manner and analyse in relate to the type of homebuyers from the different social-demographic group. The overall significant level of housing preference will be summarised in mean rank, from the most significant to least significant and compared with the finding identified from literature review. Any changes of homebuyer preference before and after COVID-19 pandemic will be presented in a table at the last chapter of this study.

3.8 Conclusion

In conclusion, this chapter elaborated the research flow with reference to the research flow chart depicted. This chapter covered the study methodology, data collection strategy, and sampling strategy. The preparation of the research instrument and the questionnaire pre-test, which must be carried out prior to survey questionnaire distribution, are then covered in depth. The following chapter will describe the study's findings.

CHAPTER 4

FINDINGS

4.0 Introduction

In this chapter, the results of the data analysis step will be reported on and discussed. To successfully present the results, a succinct interpretation of the findings will be provided, along with an appropriate table. The chapter's opening section examines the respondents' social demographics and characteristics related to home purchases. The second section of the chapter examines homebuyers' choices for housing characteristics following the COVID-19 pandemic outbreak. The results regarding the effect of the COVID-19 pandemic on homebuyers' preferences for housing attributes across sociodemographic backgrounds will be the subject of the chapter's final section.

4.1 Respond Rate of the Survey and Outlier

Survey questionnaires were distributed through Microsoft Form to 386 respondents. All survey were returned with complete answer without missing question. In order to ensure the data used in the study will be accurately represents the results of the finding, all these replies received from respondents must be filtered to eliminate outlier. In this regard, boxplots (which is also called box-whisker plots) can be used to show the range of the data set (Nuzzo, 2016). According to (Nuzzo, 2016), whiskers are generally extended 1.5 times beyond from the first and third quartiles and the data value shall be contained between the 2 ends of the whiskers. Any data values beyond this are flagged as possible outliers and plotted as individual points (Nuzzo, 2016).

Due to the presence of outliers, 12 samples were excluded from this research, bringing the number of total usable samples down to 374. As long as the research is conducted with at least 374 samples, which is more than the minimum of 200 samples advised by (Hair, Black,

Babin, & Anderson, 2014), non-normality's negative effects may be reduced to a negligible level and at least 100 samples are needed to conduct a factor analysis.

4.2 Respondents' Social-Demographic Profile

To better understand each respondent's demographic profile, social-demographic questions were asked at the beginning of the survey questionnaire for this research. The information requested from the respondents included their age range, gender, marital status, level of education, and employment. The questionnaire includes questions about the number of people residing in the house in order to learn more about the family members or roommates who share the same home. The profile will be reported in the following parts.

4.2.1 Gender

Refer to table 4.1, the respondents' gender was comprised of 195 male and 179 female or equivalent to 52.14% and 47.86%. This study sample suggests that the findings may be prone to a male perspective which is also in line with Malaysia's community in which male is dominant in the total population.

TABLE 4.1: GENDER OF RESPONDENTS

Gender	Frequency	%
Male	195	52.14%
Female	179	47.86%
Total	374	100%

4.2.2 Age

Refer to table 4.2, majority of the respondents were formed by the age group of 30 to 39 years old with the highest percentage at 48.93%. It followed by the age group of 40-49 years old (23.80%), 20-29 years old (12.83%), 50-59 years old (11.23%) and the minority is 60 years old and above (3.21%). Further refer to the actual labour force in Malaysia for year 2021 generated by (Statista, 2022), the majority of the working age group shall be 20-29 years old, followed by 30-39 years old, 40-49 years old, 50-59 years old and the minority is 60-64 years old. Despite of the sample size is differed from the labour force population recorded by Statista, it is still applicable to examine the housing preference across the age range categories for this study.

TABLE 4.2: AGE OF RESEPDENTS

Age	Frequency	%
20 - 29 years old	48	12.83%
30 - 39 years old	183	48.93%
40 - 49 years old	89	23.8%
50 - 59 years old	42	11.23%
60 years old and above	12	3.21%
Total	374	100%

4.2.3 Marital Status and Number of Members Living in The House

Refer to table 4.3, the result shows that most of the respondent was form by the group of married respondents with total 245 persons or equivalent to 65.51%, followed by single with 122 persons (32.62%) and the remaining was divorce or windowed group with 7 person (1.87%).

In term of the number of members living in the same house, 94.65% of respondents are staying together with other person and the majority member is 4 persons or equivalent to 29.68%. The frequency or percentage of number of members living in the same house is increasing substantially from 2 persons to 3 persons, and continue up to the peak at 4 persons before it lower down to 5 to 6 person and above. Both information further indicate that majority homebuyers are looking for accommodation that supporting family living rather than single person.

TABLE 4.3: MARITAL STATUS AND NUMBER OF FAMILY MEMBER OF RESPONDENTS

	Marital Status						Total	
	Single		Married		Divorced / Widowed		n	%
Number of Family Member (include respondent under one roof)	n	%	n	%	n	%	n	%
One person	15	4.01%	2	0.53%	3	0.8%	20	5.35%
Two persons	16	4.28%	46	12.3%	0	0%	62	16.58%
Three persons	23	6.15%	42	11.23%	2	0.53%	67	17.91%
Four persons	33	8.82%	77	20.59%	1	0.27%	111	29.68%
Five persons	13	3.48%	47	12.57%	1	0.27%	61	16.31%
Six persons and above	22	5.88%	31	8.29%	0	0%	53	14.17%
Total	122	32.62%	245	65.51%	7	1.87%	374	100%

4.2.4 Education Level

Refer to table 4.4, most of the respondents had bachelor degree as their highest education level which consist of 226 persons or equivalent to 58.85%. This result followed by respondents in sequence ranking from second highest to lowest namely postgraduate degree (21.93%), certificate & diploma (15.24%), secondary school (2.41%), high school (1.87%) and primary school (0.27%). Thus, it can be concluded that respondents have basic knowledge in answering to this survey.

TABLE 4.4: EDUCATION LEVEL OF RESPONDENTS

Education Level	Frequency	%
Bachelor Degree	218	58.29%
Postgraduate Degree	82	21.93%
Certificate & Diploma	57	15.24%
Secondary School	9	2.41%
High School	7	1.87%
Primary School	1	0.27%
Total	374	100%

4.2.5 Occupation

Refer to table 4.5, the result show that most of the respondents were working adult with highest ranking as private employee which consist of 287 persons or equivalent to 76.74%. This ranking of working adult were followed by business owner with 51 person (13.64%) and government staff with 12 persons (3.21%). The balance is non-working adult namely unemployed person consist of 15 persons (4.01%) and followed by 9 persons (2.41%) who are retiree. This indicates that the sample of this study will likely representing private sector employee perspective in which this group is also the main segment of housing.

TABLE 4.5: OCCUPATION OF RESPONDENTS

Occupation	Frequency	%
Private Employee	287	76.74%
Business owner	51	13.64%
Unemployed	15	4.01%
Government staff	12	3.21%
Retired	9	2.41%
Total	374	100%

4.2.6 Household Income

Refer to table 4.6, most of the respondents' household income is at the level of RM 6,000 and below which consist of 128 household or equivalent to 34.22%. The second highest range is RM 6,100 to RM 10,000 which consist of 29.14% of respondent, followed by above RM 14,001 (23.80%) and the balance are in the range of RM 10,000 to RM 14,000 (12.38%). By comparing the sample with income classification in Malaysia, the household income below RM4,850 per month is categorised as B40, between RM4,851 per to RM10,970 per month is M40 and above RM10,971 per month is T20 (Department of Statistics, Malaysia, 2021). In this case, it shown that the ratio of sample for this study is under-represented by B40 and M40 group while over-represented by T20 group.

TABLE 4.6: GROSS HOUSEHOLD INCOME OF RESPONDENTS

Gross Household Monthly Income	Frequency	%
RM 6,000 and below	128	34.22%
RM 6,100 - RM 10,000	109	29.14%
RM 10,001 - RM 14,000	48	12.83%
Above RM 14,001	89	23.8%
Total	374	100%

4.2.7 Summary of Social Demographic Result

In summary, social demographic during this COVID-19 pandemic, the result show that significant group of respondents are form by the age group of 30 to 39 years old, male, and married. Further refer to the number of living member, it shown that most of the respondents had 4 persons staying together under the same house. In term of the respondent's highest education level, the majority of respondents had a bachelor's degree as their highest level of schooling. Further looking into the occupation of respondents, majority of the respondents are working adult and work as private employee with monthly household income of RM6,000 and below as the most frequent profiles of the respondents (refer to table 4.7).

TABLE 4.7: SOCIAL DEMOGRAPHIC OF MAJORITY OF RESPONDENTS

Social Demographic	Category	Frequency	Percentage
Age	30 – 39 years old	183	48.93%
Gender	Male	195	52.14%
Marital status	Married	245	65.51%
Number of Living Member	4 persons	111	29.68%
Highest Education Level	Bachelor degree	218	58.29%
Occupation	Private Employee	287	76.74%
Household income	RM 6,000 and below	128	34.22%

4.3 Housing Purchase Characteristics

In this section, it will discuss about the house purchase characteristics which include the intention of home purchase in future, purpose of next purchase, financial capabilities of homebuyers, house price, preferred payment mechanism & market and loan tenure for house purchase.

4.3.1 Target of Home Purchase in Future

Refer table 4.8, the results show that the most significant answer “yes, but not sure when” (n: 143; 38.24%) and the second significant level by the answer “No” (n: 77; 20.59%). Whereas the group of respondents with more certain answer with a target duration, they select “yes, within 1, 2 to 3 or 3 to 5 years’ time”, the total frequency is 154 persons or equivalent to 41.17%. In total, 79.41% of the respondents are looking for either purchasing their first home or upgrading their existing accommodation in future.

TABLE 4.8: TARGET HOMEOWNERSHIP IN FUTURE

When do you consider to purchase a property in future?	Frequency	%
Yes, but not sure when	143	38.24%
No.	77	20.59%
Yes, within 2 to 3 years’ time	68	18.18%
Yes, within 3 to 5 years’ time	49	13.1%
Yes, within 1 year time	37	9.89%
Total	374	100%

4.3.2 Purpose of The Next House Purchase

Refer to table 4.10, it shown that most of the respondents' intention of purchase is for own stay purpose with frequency of 208 (55.61%). This result followed by the purchase for investment purpose (n:127; 33.96%) and lastly is for children purpose (n: 39; 10.43%). These results were further divided into the categories of those who will move to another neighbourhood or within the same neighbourhood. Regardless the main purpose of next purchase is for own stay, for children or for investment, it found that most of the respondents are considering to move to another neighbourhood with frequency of 237 (63.37%).

TABLE 4.9: PURPOSE OF NEXT PURCHASE

		If you are considering to make a purchase of property, will you move out from your current neighbourhood?					
		Yes, I am considering moving to another neighbourhood		No, I will look for property within the same neighbourhood		Total	
		n	%	n	%	n	%
The main purpose of your next purchase is:	For own stay	156	41.71%	52	13.9%	208	55.61%
	For children	21	5.61%	18	4.81%	39	10.43%
	For investment	60	16.04%	67	17.91%	127	33.96%
	Total	237	63.37%	137	36.63%	374	100%

4.3.3 Income Reserve for Housing Properties

Refer to table 4.10, most of the respondents willing to allocate 20.1 to 30% of their income to finance the house property (n:184; 49.20%). The allocation range in sequence follow by below 20% (n:88; 23.53%), 30.1 to 40% (n:74; 19.78%), 50% and above (n: 16; 4.28%), and 40.1 to 50% (n:12; 3.21%). This result shown that most of the respondent (n: 272; 72.73%) are aware of the BNM's requirement in relate to house price and income ratio.

TABLE 4.10:ALLOCATION OF INCOME TO FINANCE PROPERTIES

I am willing to allocate percentage of income to financing the property.	Frequency	%
Below 20	88	23.53%
20.1 - 30%	184	49.20%
30.1 - 40%	74	19.78%
40.1 - 50%	12	3.21%
50.1 and above	16	4.28%
Total	374	100%

4.3.4 House price

In table 4.11, the result shown that most of the respondents determine their affordable price range at RM300,000 to RM500,000 at frequency of 149 (39.84%). This ranking followed by the price range at RM 500,001 - RM 750,000 (n: 107; 28.61%), below RM 300,000 (n: 54; 14.44%), RM 750,001 - RM 1 million (n: 44; 11.76%) and above RM 1 million (n: 20; 5.35%). A household earning shall be at least RM100,000 yearly or RM8,333 monthly in order to afford a house priced up to RM300,000 (Bank Negara Malaysia, 2016). This finding seems to be in contradict to the income level as most of the respondents' household income were not more than RM 10,000 per month (refer to section 4.2.6), which mean the affordable house price would be capped at RM360,000. It further implies that homebuyers may have the tendency to be overconfidence in purchasing their residents. In the case if it is beyond their capability, the homebuyers will be creating more burden for loan repayment.

TABLE 4.11: AFFORDABLE PRICE RANGE OF RESPONDENTS

What would be your affordable price range if you plan to purchase a residential property?	Frequency	%
≤ RM 300,000	54	14.44%
RM 300,001 - RM 500,000	149	39.84%
RM 500,001 - RM 750,000	107	28.61%
RM 750,001 - RM 1mil	44	11.76%
≥ RM 1mil	20	5.35%
Total	374	100%

4.3.5 Preferred Payment Method & Market

Refer to table 4.12, the most preferred payment method is combination of cash and mortgage with total respondent of 357 persons (95.45%). The option of cash and mortgage as the most preferred financial mechanism in supporting homeownership is not surprising as investment in homeownership is the most expensive investment whereby mortgage is an important financial support for the majorities. Besides, the result show that most of the respondents are preferred to purchase new property from the primary market with the highest frequency at 188 (50.27%) and by way of cash and mortgage as preferred payment method with total 179 (47.86%). Cash payment and secondary market (sub-sales properties) are less preference by the respondents.

TABLE 4.12: PREFERRED PAYMENT METHOD & MARKET

Your preference to purchase of residential property from:	Preferred payment method					
	Cash & mortgage		Cash		Total	
	n	%	n	%	n	%
New property	179	47.86%	9	2.41%	188	50.27%
Sub-sales	25	6.68%	1	0.27%	26	6.95%
Either	153	40.91%	7	1.87%	160	42.78%
Total	357	95.45%	17	4.55%	374	100%

4.3.6 Loan tenure

Refer to table 4.13, the most preferred loan tenure range is 26 to 30 years with the highest frequency of 127 or equivalent to 33.96%. Followed by the tenure range 16 to 25 years (n:89; 23.80%), above 31 years (n:84; 22.46%), 11 to 15 years (n:55; 14.71%) and the last is below 10 years (n:19; 5.08%). As majority of the respondents were form by the age group of 30-39 years old, therefore, the maximum loan tenure would be 31 years. This result shown that the most preference loan tenure is verified by the age group. However, it still subject to the household income level of the homebuyers and house price of the targeted properties as discussed in section 4.3.4.

TABLE 4.13: PREFERRED LOAN TENURE

Preferred loan tenure	Frequency	%
Below 10 years	19	5.08%
11 - 15 years	55	14.71%
16 - 25 years	89	23.8%
26 - 30 years	127	33.96%
Above 31 years	84	22.46%
Total	374	100%

4.3.7 Financial Capabilities of Homebuyers

Refer to table 4.14, it shown that the mean rank of criteria concern by respondents in relate to the financial capabilities. As discussed, respondents were more sensitive to the imposition of revise interest rate namely BR / BLR on housing which potentially impact on their repayment later (No. 1; mean rank, MR: 5.21). On the other hand, the respondents were also concerning on the mortgage loan to value ratio that usually used by financial institution to assess the lending risk of homebuyer, as a tool to evaluate their own financial capability before they take up the new mortgage loan for housing properties (No. 2; MR: 5.16). Apart from that, respondents were welcomed the government's initiatives namely HOC as it managed to encourage the respondents to purchase residential properties (No. 3; MR: 4.9) with willingness to take up 90% loan from financial institution (No. 4; MR: 4.83). Nonetheless, respondents were still concerning on the impact of RPGT which will be imposed to during the property transaction (No. 5; MR: 4.59) regardless whether they have confident to secure loan from financial institution (No. 6; MR: 4.41), had sufficient saving for deposit, upfront cost payment (No. 7; MR: 3.65), and able to pay premium for housing (No. 8; MR: 3.25) during this COVID-19 pandemic.

Apart, Likert scale result shown that most of the statement were toward the "agreed & strongly agree" except for the statement in relate to sufficient saving for down payment and premium which were more toward "neutral" and "disagreed and strongly disagreed" with 57.22% and 65.24% respectively. Even if the respondents were able to secured 90% loan from the financial institution, respondents were still highly concerned on the upfront cost to be borne by them as derived from their cash reservation. Cash reservation was a concerned by respondents as this reservation is important for their family's needs especially when needed for emergency purpose.

TABLE 4.14 : HOUSE PURCHASE CONCERN & MEAN RANK

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	Mean Rank
I have enough saved for the down payment and other upfront costs	30	47	137	126	34	3.65
I would consider the effects of Real Property Gains Tax (RPGT) when I make a decision to invest in a residential property during COVID-19 pandemic.	7	11	129	176	51	4.59
I would consider the Base Rate / Base Lending Rate when I make a decision to purchase a residential property during COVID-19 pandemic.	4	9	88	193	80	5.21
I would consider the importance of Mortgage Loan to Value Ratio when I make a decision to invest in a residential property during COVID-19 pandemic.	4	9	83	211	67	5.16
I would consider the availability of Homeownership Campaign when I make a decision to invest in a residential property during COVID-19 pandemic.	4	9	113	183	65	4.9
I am willing to get 90 loan to purchase housing during COVID-19 pandemic.	14	26	85	179	70	4.83
I am eligible to get bank loan during COVID-19 pandemic.	13	17	127	175	42	3.25
I am able to pay a premium for housing during COVID-19 pandemic.	22	66	156	112	18	4.41

4.3.8 Challenges of House Purchase

Refer to table 4.14, it observed that significant group of respondents were self-determining their affordable price range of housing properties at the price range of RM 300,000 to RM 500,000. For respondents to purchase their preferred housing property, most of the respondents chosen cash and mortgage as the most preferred payment method. After the outbreak of COVID-19, it shown that most of the respondents were increase their financial sensitivity in relate to the change of BLR/BR and also concerning on the stability of economy and politic in Malaysia. Nonetheless, most of the respondents were still willing to reserve 20.1% to 30% of their income to purchase housing properties. New housing property from the primary market was the most preferred residential market by the group of respondents. New housing property usually lower in term of upfront cost compared to sub-sales housing property. In a way, it helps the respondents to reduce dependent on their cash reserved and simultaneously help to reserve more cash in hand for other needs. Despite, securing maximum loan tenure will help to reduce the burden of the respondents in their monthly repayment. In this study, it shown that the most preferred loan tenure is within 26 to 30 years. However, maximum loan tenure is depending on the social demographic factor of respondent such as age, reason being for the borrowers to settle their housing loans by their retirement age (Bank Negara Malaysia, 2016).

TABLE 4.15: SIGNIFICANT CATEGORIES – FANANCIAL CAPABILITIES

Financial Capabilities	Category	Frequency	Percentage
House price	RM 300,001 - RM 500,000	149	39.84%
Income reserve for housing properties	20.1 - 30%	184	49.20%
Preferred loan tenure	26 - 30 years	127	33.96%
Preferred payment method	Cash & mortgage	357	95.45%
Preferred residential market	New property	179	47.86%

4.4 Housing Attributes and Homebuyers Socio-Demographic Profile

This section will further disclose the findings on preferred housing attributes – in term of (i) locational attributes, (ii) neighbourhood attributes, and (iii) structural attributes. A series of test of differences (Mann-Whitney and Kruskal-Wallis) were conducted to reveal whether these attributes differ across socio-demographic variables.

4.4.1 Locational Attributes

In this section, the discussion will be form in the way looking into the scale of importance level defined by the respondents according to their group of social demographics, financial and toward their preference for locational attribute during this COVID-19 pandemic.

Refer table 4.16, generally, if the house location comes with good location, it will be considered by the respondents (mean rank: 6.32). In other word, if a house comes with good location, it will influence the homebuyer’s preference for locational attributes as majority of the respondent from all profile’s range have selected “important” level for good location.

In this study, most of the respondent (93.59%) are working adult, therefore, the proximity to workplace is at second rank (mean: 5.17) followed by proximity to public transport (mean: 4.54), and commercial (mean: 4.51) as to fit their busy working life. When comes to family, proximity to education center become the priority over the proximity to highway. Proximity to education center lead by the proximity to primary school, secondary school and high school (mean: 4.25), followed by pre-school and day care (mean: 3.97) and tertiary school (mean: 3.64). Respondents are less concerned on the proximity to highway (mean: 3.59) and rated as “less and least” important to respondents as shown in table 4.16.

TABLE 4.16: LOCATIONAL ATTRIBUTES – LIKERT SCALE & MEAN RANK

	Not applicable	Least important	Less important	Important	Most Important	Mean Rank
If a house is at proximity to Pre-school / Day care Center, I intend to buy it.	46	36	99	150	43	3.97
If a house is at proximity to Primary / Secondary / High School, I intend to buy it.	30	39	83	179	43	4.25
If a house is at proximity to Tertiary School, I intend to buy it.	33	54	108	152	27	3.64
If a house is at proximity to work place, I intend to buy it.	8	13	62	216	75	5.17
If a house is at proximity to commercial, I intend to buy it.	7	27	88	209	43	4.51
If a house is at proximity to public transport, I intend to buy it.	10	23	94	194	53	4.54
If a house comes with good location, I intend to buy it.	1	1	11	207	154	6.32
If a house is closed to highway, I intend to buy it.	18	63	137	120	36	3.59

4.4.2 Homebuyer's Profile & Locational Attributes

TABLE 4.17: MANN-WHITNEY U-TEST FOR LOCATIONAL ATTRIBUTES & GENDER

Significant in Red Bold.	Mann-Whitney U	Z	Exact Significance (2-tailed)
Workplace	17422.5	-0.03	0.977
Public Transport	16576	-0.91	0.402
Commercial	16618.5	-0.89	0.425
Pre-school / Day care Center	16274.5	-1.18	0.26
Primary / Secondary / High School	16534	-0.94	0.38
Tertiary School	13943	-3.53	0.001
Highway	15701.5	-1.76	0.094

Source: findings tabulated from Datatab analysis platform.

TABLE 4.18 : KRUSKAL-WALLIS TEST FOR LOCATIONAL ATTRIBUTES

Significant in Red Bold.	Age	Marital	Education	Occupation	Household Income
Workplace	0.024	0.148	0.408	0.386	0.049
Public Transport	0.296	0.153	0.684	0.037	0.021
Commercial	0.40	0.051	0.733	0.345	0.347
Pre-school / Day care Center	<0.001	<0.001	0.044	0.081	0.41
Primary / Secondary / High School	<0.001	<0.001	0.047	0.022	0.947
Tertiary School	0.326	0.026	0.046	0.224	0.751
Highway	0.491	0.610	0.854	0.724	0.968
Level of significance: 0.05					

Source: findings tabulated from Datatab analysis platform.

TABLE 4.19: DUNN-BONFERRONI-TESTS FOR LOCATIONAL ATTRIBUTES

Significant in Red Bold .		pairwise group comparisons
Workplace	Age	>0.05, No significant difference
	Household Income	>0.05, No significant difference
Public Transport	Occupation	>0.05, No significant difference
	Household Income	Above RM 14,001 - RM 6,000 and below
Pre-school / Day care Center	Age	30 - 39 years old - 50 - 59 years old
	Marital	Single – Married Married - Divorced
	Education	>0.05, No significant difference
Primary / Secondary / High School	Age	30 - 39 years old - 50 - 59 years old
	Marital	Single – Married
	Education	Bachelor Degree - Certificate & Diploma
	Occupation	>0.05, No significant difference
Tertiary School	Marital	>0.05, No significant difference
	Education	Bachelor Degree - Certificate & Diploma

Source: findings tabulated from Datatab analysis platform.

(A) Proximity to workplace

Majority of respondent from different age range, gender, marital status, occupation, education level and household income were responded as “important and most important” level (refer table 4.16). Further refer to the results of the descriptive statistics, it shows that the Male group had equally high values with Female group (median = 4) for preference of a house is at proximity to workplace. However, this equally high value between male and female was inconsistent with DOSM’s finding that male is more likely to be working compare to female. Female graduates make up more than half of the unemployment rate (54.2%) compared to males (45.8%) and most of the unemployed females had to adhere to housework or family responsibilities (35.3%) (Department of Statistics Malaysia, 2022). Nonetheless, Mann-Whitney U-Test (refer to table 4.17), it shown that there is no difference between Male and Female with respect to the house is at proximity to work place as the result is not statistically significant, $U=17422.5$, $p=.977$, $r= 0.$.

In term of marital, education and occupation, Kruskal-Wallis test (refer to table 4.18), it showed that there is no significant difference between these categories with respect to a house is at proximity to work place except for the age range and household income. Kruskal-Wallis test showed that there was a significant difference for the age range and household income. Despite the significant difference in the Kruskal-Wallis test, no pairwise group comparison was significant in the Dunn-Bonferroni test (refer to table 4.19) as all adjusted p values were greater than 0.05.

(B) Proximity to Public Transport

In term of gender, descriptive statistics show that the Male group had equally high values with female for a house is at proximity to public transport (median = 4). However, Mann-Whitney U-Test showed not statistically significant, $U=16576$, $p=.402$, $r= 0.05$, therefore, no difference between Male and Female.

In term of age, marital and education level, Kruskal-Wallis test showed that there is no significant difference between these categories with respect to the a house is at proximity to public transport as the p-value is greater than 0.05.

In term of occupation and household income group analysis, Kruskal-Wallis test showed that there is a significant difference between the categories of occupation group with respect to a house is at proximity to public transport $p=.037$ and $p=.021$ respectively. However, there is no pairwise group comparison was significant in the Dunn-Bonferroni test for occupation group as all adjusted p values were greater than 0.05. But for household income, Dunn-Bonferroni test showed that the pairwise group comparison of Above RM 14,001 - RM 6,000 and below has an adjusted p-value of less than 0.05, and thus, based on the available data, it can be assumed that the two groups are significantly different that the two groups are significantly different from each other.

(C) Proximity to Commercial

In term of gender, the results of the descriptive statistics show that the Male group had equally high values if a house is at proximity to commercial (median = 4). However, Mann-Whitney U-Test showed that there is no difference between the Male and Female group with respect to a house is at proximity to commercial, it was not statistically significant, $U=16618.5$, $p=.425$, $r= 0.05$. In term of age, marital, education, occupation and household income, Kruskal-Wallis test showed that there is no significant difference between these

categories with respect to a house is at proximity to commercial (refer to table 4.18). In this regard, it could be related to the changed of homebuyers' purchasing behaviour as most of the consumers regardless their social-demographic background have shifted to online shopping during the pandemic (Khairun, Masri, & Chee, 2022)

(D) Proximity to Education Center

In term of gender, the results of the descriptive statistics show that the Male group had higher values when house is at proximity to Tertiary School, (Median = 4) than the Female group (Median = 3). Mann-Whitney U-Test (refer table 4.17), it shows that the difference between Male and Female with respect to the house is at proximity to Tertiary School, it shows statistically significant, $U=13,943$, $p<.001$, $r= 0.18$. Thus, there is a difference between the Male and Female groups with respect to house is at proximity to Tertiary School. This result of analysis shown that the preference by gender is unique and it was not related to the number of academic staff and student in private higher education institution as the number of female student and academic staff were higher compared to male in year 2021 as recorded by (Department of Statistics Malaysia, 2023).

Refer to table 4.16, in term of proximity to education center, the trend is more toward "important" level from age range 20 to 29 years old until 50 to 59 years old except for 60 years old and above which is more toward "less and least important" level and "not applicable" level. The "important" level is more significant for the age range 20 to 29 years old to 30 to 39 years old. Changes between "less important" to "important" level are less significant for the age range 40 to 49 years old and 50 to 59 years old. Interestingly, the age 40 to 49 years old result show more toward less important particularly for the proximity to pre-school and day care center. This scenario probably relates to their family circumstance where the dependents' age of education in different levels.

The Kruskal-Wallis test (refer table 4.18), it showed that there was a significant difference between age group toward proximity to Pre-school / Day care Center and Primary / Secondary / High School but no significant difference for proximity to Tertiary School. A Dunn-Bonferroni test was used to compare the groups in pairs to find out which was significantly different. According to the results of the Dunn-Bonferroni test, the pairwise group comparison of the 30 to 39 and 50–59-year-old age groups has an adjusted p-value of less than 0.05, and it can therefore be inferred from the information at hand that the two groups are statistically different from one another. According to the research by (Tsou &

Sun, 2021), different stage of family life-cycle would have different demand in their needs. Therefore, this could explain that these two groups were in different stage of family life-cycle namely young family and full nest family which has for different demand in education related needs for their children.

In term of marital status, not only the married group are more concern on proximity to education center but also the single group except the group of divorced / widowed. This scenario probably relates to single group who are preparing themselves for marriage life and family expansion later according to their family life-cycle. Single also can be middle-age-single (Tsou & Sun, 2021) who are pursuing further study in tertiary education level. Kruskal-Wallis test (refer table 4.18), it showed that there is a significant difference between marital group with respect to the house at proximity to Pre-school / Day care Center and Primary / Secondary / High School, $p=.001$. Dunn-Bonferroni test revealed that the pairwise group comparisons of Single - Married and Married - Divorced / Widowed have an adjusted p-value less than 0.05 and thus, these groups are assumed to be significantly different in pairs based on the evidence that is currently available. This result is in line with literature study that the probability of family life-cycle in different stage has different house preference according to their needs.

In term of occupation of respondents, results show that working and non-working adult were concerned on the proximity to education center except the retiree. Government's employees were less concerned on the proximity to pre-school and day care center as government are continuing to provide pre-school and day care service in government office premise as benefits to government's employees (Department of Social Welfare, 2020). Kruskal-Wallis test (refer table 4.18), it showed that there is a significant difference between occupation with respect to the house proximity to Primary / Secondary / High School, $p=0.022$. Despite the significant difference in the Kruskal-Wallis test, no pairwise group comparison was significant in the Dunn-Bonferroni test as all adjusted p values were greater than 0.05.

In term of education level of respondent, Kruskal-Wallis test (refer table 4.18), it showed that there was a significant difference for proximity to Pre-school / Day care Center ($p=0.044$), Primary / Secondary / High School ($p=0.047$) and Tertiary School ($p=0.046$). The Dunn-Bonferroni test (refer to table 4.19), it showed that the pairwise group comparison of Bachelor Degree - Certificate & Diploma has an adjusted p-value of less

than 0.05, and thus, these groups are assumed to be significantly different in pairs based on the evidence that is currently available. This differences in these two groups probably related to their occupation as academic staff at tertiary school. According to (Department of Statistics Malaysia, 2023), the number of Male academic staff for Diploma level is higher compared to female.

In term of household income, Kruskal-Wallis test showed that there is no significant difference between the categories of household income with respect to a house is at proximity to Pre-school / Day care Center ($p=0.41$), Primary / Secondary / High School ($p=0.947$), and Tertiary School ($p=0.751$). In other word, it means that every group of household income, their preference for the proximity to education center are consistent which is more toward “important” and “most important” level (refer table 4.16).

(E) Proximity to Highway

Proximity to highway was ranking the lowest in the locational attributes and 58.29% (n: 218) of the respondents were feedback toward “less and least important” and “not applicable”. Descriptive statistics show that the Male group had equally high values with female (median = 3). Mann-Whitney U-Test (refer table 4.17), it showed that there is no difference between Male and Female with respect to a house is closed to highway as it was not statistically significant, $U=15,701.5$, $p=.079$, $r= 0.09$. In term of age, marital, education, occupation and household income group, Kruskal-Wallis test showed that there is no significant difference between these categories with respect to a house is closed to highway. This result showing less popularity on proximity to highway, it probably could relate to own concern on the environment quality and pollution level in term of sound and air pollution level (Lodge, et al., 2022).

4.5 Neighbourhood Attributes

In this section, the discussion will be form in the way looking into the Likert scale level defined by the respondents according to their profile toward their preference for neighbourhood attribute during this COVID-19 pandemic.

4.5.1 Neighbourhood Attribute Ranking

Refer to table 4.20, a housing neighbourhood with good security (e.g. gated guarded and lower crime rate) were rate the first rank (mean: 4.41). This ranking followed by the housing environment with good environment quality (mean: 4.31), good distance to all amenities (mean: 4.06) and recreation park (mean: 2.88). The last rank equally shared by the neighbourhood closer to hospital/clinics and family and relatives (mean: 2.67).

A good environment quality, good distance from all amenities and good security were rated as significantly higher toward “important and most important” level compare to “less and least important” level. On the other hand, closer to family and relative, near to hospital/clinics and recreation park, both are rated towards “important and more important” level. However, neighbourhood closer to hospital/clinics was rated higher compare to neighbourhood family and relatives with frequency different by 15.

TABLE 4.20: LIKERT SCALE & MEAN RANK FOR NEIGHBOURHOOD ATTRIBUTES

	Not applicable	Least important	Less important	Important	Most Important	Mean Rank
I am interested to buy a house that is close to my family/relatives	14	33	135	150	42	2.67
I will consider buying a house if it is near to the hospital/clinics.	11	31	125	172	35	2.67
If a house is at proximity to recreation park, I intend to buy it.	7	21	121	181	44	2.88
If a house has good environment quality, I intend to buy it.	2	0	17	218	137	4.31
If a house has good security (e.g., Gated and Guarded, lower crime rate), I intend to buy it.	3	0	22	187	162	4.41
If a house is at a good distance from all amenities, I intend to buy it.	5	10	27	205	127	4.06

4.5.2 Homebuyer's Profile & Neighbourhood Attributes

TABLE 4.21: MANN-WHITNEY U-TEST FOR NEIGHBOURHOOD ATTRIBUTE & GENDER

Significant in Red Bold.	Mann-Whitney U	Z	Exact Significance (2-tailed)
Security	14857.5	-2.79	0.013
Environment Quality	16243	-1.33	0.247
Distance to Amenities	16976.5	-0.51	0.649
Recreation Park	15440	-2.09	0.054
Family and Relatives	16731.5	-0.73	0.491
Hospital / Clinics	17334	-0.12	0.91

Source: findings tabulated from Datatab analysis platform.

TABLE 4.22: KRUSKAL-WALLIS TEST FOR NEIGHBOURHOOD ATTRIBUTES

Significant in Red Bold.	Age	Marital	Education	Occupation	Household Income
Security	0.74	0.531	0.646	0.315	0.407
Environment Quality	0.574	0.482	0.355	0.303	0.846
Distance to Amenities	0.324	0.278	0.204	0.871	0.137
Recreation Park	0.81	0.608	0.069	<0.001	0.594
Family and Relatives	0.74	0.531	0.646	0.315	0.407
Hospital / Clinics	0.128	0.438	0.528	0.423	0.004
Level of significance: 0.05					

Source: findings tabulated from Datatab analysis platform.

TABLE 4.23: DUNN-BONFERRONI-TESTS FOR NEIGHBOURHOOD ATTRIBUTES

Significant in Red Bold .		pairwise group comparisons
Recreation Park	Occupation	Business owner – Unemployed Government staff - Unemployed
Hospital / Clinics	Household Income	Above RM 14,001 - RM 6,000 and below RM 10,001 - RM 14,000 - RM 6,000 and below

Source: findings tabulated from Datatab analysis platform.

(A) Security

Gender group shown significant high rating of “important to most important” level compare to “less and least important” and “not applicable”. Furthermore, female respondents were more concern on good security environment with significant higher in “most important” level. Descriptive statistics show that the Male group had lower values (Median = 4) for a house has good security (e.g. Gated and Guarded, lower crime rate compared to Female group (Median = 5). Mann-Whitney U-Test (refer table 4.22), it showed that the difference between Male and Female and the result was statistically significant, $U=14857.5$, $p=.013$, $r= 0.14$. This result was found consistent with the finding by (Harun, Shaari, & Ahmad, 2021) where the working female are easily exposed to violent crime. Therefore, female were more significant concern on lower crime rate residential area.

In term of age, marital, education, occupation and household income, Kruskal-Wallis test showed that there is no significant difference between these categories as refer to table 4.22. These results were found contradict with the finding by (Liu, Messner, Zhang, & Zhuo, 2009) that lower income and less education will increase the levels of fear of crime. However, these results demonstrate that there is no different between income and education categories in relate to the preference level of lower crime rate. This can be explained as significant high frequency of respondents ($n: 349; 93.31\%$) were preferred residential area with lower crime rate.

(B) Environment Quality

Good environment quality was rated at the highest rank for “important” level and second rank for “most important” level. Good environmental quality will enhance quality of life (Jim & Chen, 2007). Good environment quality includes good neighbourhood cleanliness and lower level of pollution (Tan T. H., 2012). This explained why the respondents were more particular on good environment quality surrounding their staying area especially after

went through a long period of “stay at home” experience during the MCO due the outbreak of COVID-19. Therefore, good environment quality become more important to homebuyer as it enhance their quality of life.

In term of gender group, the descriptive statistics show that the Male group had equally high values with female (median = 4) for a house has good environment quality. Mann-Whitney U-Test (refer table 4.22), it showed that no difference between Male and Female with respect to a house has good environment quality as it was not statistically significant, $U=16243$, $p=.247$, $r= 0.07$. In term of age, marital, education, occupation and household income, Kruskal-Wallis test showed that there is no significant difference between the categories as shown in table 4.22.

These results reflect that environment quality is important for the homebuyers. However, it has no significant difference across the different social-demographic group as significant high frequency of respondents ($n: 355; 94.92\%$) were preferred good environment quality.

(C) Distance to All Amenities

Good distance to all amenities were most rated by respondents at the second highest rank for “important” level and third rank for “most important” level. Good distance in this context does not focus on the travel distance and whether by transport or walk. Good distance in this study is depends on self-comfortable level of homebuyer. Good distance can be different between different social-demographic (Menec, Brown, Newall, & Nowicki, 2016).

In term of gender group, descriptive statistics show that the Male group had equally high values with female (median = 4) for a good distance from all amenities. However, Mann-Whitney U-Test (refer table 4.22), it showed that the no difference between Male and Female with respect to ‘a house is at a good distance from all amenities’ as it was not statistically significant, $U=16976.5$, $p=.649$, $r= 0.03$. In term of age, marital, education, occupation and household income, Kruskal-Wallis test showed that there is no significant difference between the categories as shown in table 4.22. This result shown that it was inconsistent with the study by (Menec, Brown, Newall, & Nowicki, 2016), for example, male shown less important to good distance to amenities compared to female. Anyway, the results for this study in general support that good distance is important to homebuyer regardless the exact distance in metric to the amenities.

(D) Recreation Park

Proximity to recreation park is the fourth ranking in “important” level rated by the respondents. In term of gender group, the descriptive statistics show that the Male group had equally high values with female for a house is at proximity to recreation park (median = 4). Mann-Whitney U-Test (refer table 4.22), it showed that the difference between Male and Female with respect to a house is at proximity to recreation park, it was not statistically significant, $U=15440$, $p=.054$, $r= 0.11$

In term of occupation group, Kruskal-Wallis test showed that there is a significant difference between the categories of the occupation with respect to a house is at proximity to recreation park, $p<.001$. The Dunn-Bonferroni test revealed that the pairwise group comparisons of Business owner - Unemployed and Government staff - Unemployed have an adjusted p-value less than 0.05 and thus, based on the information that is currently available, it can be inferred that these groups are considerably different from one another in pairs. In term of age, marital, education, occupation and household income, Kruskal-Wallis test showed that there is no significant difference between the categories as shown in table 4.22.

The results were inconsistent with the study by (Kaczynski, et al., 2014) as different income group had different preference to the proximity to recreation park. For example, lower income group’s park use would be related to playgrounds and baseball fields which is commonly found available in recreation park compare to business owner (higher income) group’s activities would be tennis, trails, fitness stations, and skate parks which are less common in recreation park.

(E) Family and Relatives

House closer to family and relatives is the fifth ranking in “important” level rated by the respondents. In term of gender group, the descriptive statistics show that the Male group had equally high values with female (median = 4) for a house that is close to own family/relatives. Mann-Whitney U-Test showed that there is no difference between Male and Female with respect to a house that is close to own family/relatives as it was not statistically significant, $U=16,731.5$, $p=.463$, $r= 0.04$. In term of age, marital, education, occupation and household income, Kruskal-Wallis test showed that there is no significant difference between the categories as shown in table 4.22. This result would be more toward the basic needs of people, for instance when a housing is closer to family / relatives, the

homebuyer will feel fulfilment in their safety needs, and love and belonging needs as mentioned in Maslow Hierarchy of Needs.

(F) Hospital / Clinics

Eventually, housing nearer to hospital / clinic is also the fifth ranking in “important’ level rated by the respondents but it has the lowest ranking in the “most important” level. In term of gender group descriptive statistics show that the Male group had equally high values with female (median = 4) for a house if it is near to the hospital/clinics. Mann-Whitney U-Test (refer table 4.22), It demonstrated that there is no distinction between men and women with respect to ‘a house if it is near to the hospital/clinics’ as it was not statistically significant, $U=17,334$, $p=.903$, $r= 0.01$.

In term of household income, Kruskal-Wallis test showed that there is a significant difference between the categories of household income with respect to a house if it is near to the hospital/clinics, $p=0.004$.Dunn-Bonferroni test (refer table 4.23), it revealed that the pairwise group comparisons of Above RM 14,001 - RM 6,000 and below and RM 10,001 - RM 14,000 - RM 6,000 and below have an adjusted p-value less than 0.05 and thus, according to the available information, it can be assumed that these groups are considerably different from one another in pairs.

In term of age, marital, education, occupation and household income, Kruskal-Wallis test showed that there is no significant difference between the categories as shown in table 4.22.

4.6 Structural Attributes

In this section, the discussion will be formed in the way looking into the scale of importance level defined by the respondents according to their profile and toward their preference for structural attributes.

4.6.1 Structure Attributes Ranking

Refer table 4.24, low-rise residential properties categories, terrace house was the most popular selection by the respondents (mean: 6.22), followed by Semi-detached house (mean: 5.61) and bungalow (mean: 4.87). Disregards the stratified categories, town house (mean: 3.81) was the least popular in the low-rise categories. Whereas for high-rise residential properties categories, condominium scored was the most popular among the respondents (mean: 5.38). It was followed by apartment (mean: 3.71), and the least popular is flat (mean 2.67). Interestingly, the category “other than above” was not score the lowest among all the house type. This category could be the less common housing type in the market such as super-link house, cluster house, SOHO, SOVO, SOFO and shop houses. Separate study in future could be focused on housing typology impact after COVID-19 in Malaysia.

In addition, a 5-level Likert scale with the options "Least Preferred" through "Most Preferred" was used to ask respondents to rank their preferences for different kinds of residential properties. Flats and apartments were the least popular kinds of property, with 85.83% and 61.23% of respondents choosing "Least Preferred" and "Not likely," respectively. Townhouse and other type of residential (other than terrace, semi-D, bungalow, flat, apartment, condominium, and town house state in this study) were also categorise as not favoured type of residential properties as most of the respondents responded in the lower tiers of the preference scale. Accumulatively, terrace, semi-detached and condominium are more popular among the respondents, in which 85.56%, 77.27% and 74.33% chose “Most Preferred”, “I Can Consider” or “I Do Not Mind” respectively. Terrace and semi-detached types in particular received the greatest scores in the "Most preferred" category, with 35.8% and 23.26%, respectively. Interestingly, condominium received the highest score in the "I can consider" category—36.00%—while only receiving 18.72% in the "Most preferred" category.

TABLE 4.24: LIKERT SCALE & MEAN RANK FOR HOUSE TYPE

	Least Preferred		Not Likely to Choose		I Don't Mind		I Can Consider		Most Preferred		Mean Rank
	n	%	n	%	n	%	n	%	n	%	
Terrace house	28	7.49%	26	6.95%	56	14.97%	120	32.09%	144	38.50%	6.22
Semi-detached house	41	10.96%	44	11.76%	66	17.65%	136	36.36%	87	23.26%	5.61
Detached house or bungalow	67	17.91%	73	19.52%	80	21.39%	88	23.53%	66	17.65%	4.87
Flat	190	50.80%	131	35.03%	23	6.15%	27	7.22%	3	0.80%	2.67
Apartment	113	30.21%	116	31.02%	48	12.83%	87	23.26%	10	2.67%	3.71
Condominium	42	11.23%	54	14.44%	70	18.72%	138	36.90%	70	18.72%	5.38
Town house	108	28.88%	114	30.48%	59	15.78%	83	22.19%	10	2.67%	3.81
Others than above	124	33.16%	73	19.52%	102	27.27%	70	18.72%	5	1.34%	3.73

Refer to table 4.25, number of bedrooms was the most concern house aspect taken into consideration in buying a house in Klang Valley as it “agree & strongly agree” by 339 respondents. Number of bedrooms with bath was the second significant house aspect as “agree & strongly agree” by 316 respondents. After taken into consideration of these two aspects, design layout become the third significant house aspect as 305 respondents has chosen “agree & strongly agree”. Then, the fourth and fifth significant concern of house aspect is about the land area and built-up area of the residential unit with 293 and 288 frequencies respectively. The last two aspects concern was the view of the house and number of livings with 231 and 224 respondents respectively chosen on “agree & strongly agree”. Availability of maidservant’s room was the least concern aspect with 270 respondents’ feedback towards “neutral”, “disagreed and strongly disagreed”. The provision of maidservant room in a house design was not shown as a need of the respondents.

TABLE 4.25: LIKERT SCALE – STRUTURAL ATTRIBUTES

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
I am concern about the built-up area when buying a house in Klang Valley.	11	5	70	200	88
Land area has an impact to me when buying a house in Klang Valley.	10	5	66	208	85
I would consider the residential unit design layout when buying a house in Klang Valley.	10	3	56	205	100
I would consider the availability of maidservant’s room when buying a house in Klang Valley.	44	77	149	73	31
I would consider the view of the housing area (e.g. North, South direction) has an impact to me when buying a house in Klang Valley	12	13	118	167	64
I would consider the number of living room(s) when buying a house in Klang Valley.	6	31	113	169	55
I would consider the number of bedroom when buying a house in Klang Valley.	7	1	27	205	134
I would consider the number of bedroom with bath(s) when buying a house in Klang Valley.	6	5	47	209	107

4.6.2 Homebuyer's Profile & Structural Attributes

(A) House Type

Among all the house type listed in this study, there is only bungalow shown significance difference between the gender. Descriptive statistics show that the Male group had equally high values with female group for the detached house or bungalow (median = 3). Mann-Whitney U-Test showed that there is a difference between the Male and Female groups with respect to the dependent variable Detached house or bungalow as it was statistically significant, $U=14,637.5$, $p=.006$, $r= 0.14$ as refer to table 4.26. In this study, male group's preferences are more toward to bungalow compare to female.

Kruskal-Wallis Test (refer to table 4.27), it showed that significant differences were detected in social-demographic group namely age (for terrace & semi-detached), marital (for flat, condominium & townhouse), education (for semi-detached), occupation (for apartment) and household income (for semi-detached, town house & others). The groups were compared against one another using the Dunn-Bonferroni test (refer table 4.28) to determine which was substantially different. The differences in pairwise group comparison were detected for semi-detached, flat, apartment, condominium, town house, and others except terrace. Eventually, significant different in preference to terrace house was shown for all age groups but not significant in any pairwise of group categories. Semi-detached were more popular for the age group of 20 - 29 years old and 30 - 39 years old, Bachelor Degree holder compared to 50 - 59 years old, Certificate & Diploma holder. Single group's preferences in stratified high-rise were more towards to condominium compare to married group. Town house as stratified low-rise residential categories was showed significant preference by single group with income RM6,000 and below compare to other higher income level.

TABLE 4.26: MANN-WHITNEY U-TEST FOR GENDER & HOUSE TYPE

Significant in Red Bold.	Mann-Whitney U	Z	Exact Significance (2-tailed)
Terrace	16,389.5	-1.07	0.309
Semi-D	16,037	-1.4	0.176
Bungalow	14,637.5	-2.75	0.007
Flat	15,796.5	-1.75	0.113
Apartment	16,820.5	-0.63	0.546
Condominium	16,768.5	-0.68	0.513
Town House	17,003	-0.45	0.667
None of the above	16,716	-0.73	0.481

Source: findings tabulated from Datatab analysis platform.

TABLE 4.27: KRUSKAL-WALLIS TEST FOR HOUSE TYPE

Significant in Red Bold.	Age	Marital	Education	Occupation	Household Income
Terrace	0.019	0.286	0.816	0.094	0.642
Semi-D	0.005	0.177	0.003	0.267	0.040
Bungalow	0.151	0.163	0.172	0.236	0.443
Flat	0.435	0.011	0.390	0.806	0.206
Apartment	0.796	0.543	0.815	0.032	0.079
Condominium	0.113	0.013	0.383	0.652	0.504
Town House	0.267	0.024	0.333	0.201	0.005
None of the above	0.678	0.832	0.359	0.315	0.016
Level of significance: 0.05					

Source: findings tabulated from Datatab analysis platform.

TABLE 4.28: DUNN-BONFERRONI TEST FOR HOUSE TYPE

Significant in Red Bold .		pairwise group comparisons
Terrace	Age	>0.05, No significant difference
Semi-D	Age	20 - 29 years old - 50 - 59 years old 30 - 39 years old - 50 - 59 years old
	Education	Bachelor Degree - Certificate & Diploma
	Household Income	>0.05, No significant difference
Flat	Marital	Married - Divorced / Widowed
Apartment	Occupation	Business owner - Government staff
Condominium	Marital	Single - Married
Town House	Marital	Single - Married
	Household Income	RM 10,001 - RM 14,000 - RM 6,000 and below
None of the above	Household Income	RM 6,100 - RM 10,000 - RM 6,000 and below

Source: findings tabulated from Datatab analysis platform.

(B) House Aspect

Descriptive statistics show that there is only one aspect had equally high values between male and female group which is about the number of living room(s) when buying a house in Klang Valley (median = 4). Mann-Whitney U-Test (refer table 4.29), it showed that the difference between Male and Female for this house aspect was statistically significant, $U=15,088$, $p=.016$, $r= 0.13$. Male group is more concern on number of living room(s) with mean rank = 199.63 compare to female with mean rank = 174.29.

Whereas for other social demographic factors, Kruskal-Wallis Test (refer to table 4.30) showed that the significant differences were detected in the categories of age group (for number of bedroom), marital group (for availability of maidservant's room) and education group (for built-up area and unit layout) except for occupation and household income group. The groups were compared against one another using the Dunn-Bonferroni test (refer table 4.31) to determine which was substantially different. Number of bedroom had significant difference between age group of 30 - 39 years old (highest mean rank: 201.76) and 50 - 59 years old (lowest mean rank: 151.2). Meanwhile, availability of maidservant room had

significant difference between the marital group namely single group (lowest mean rank: 162.58) and married (second place mean rank: 199.48). Number of bedroom with bath had two significant differences in between two group of education level, namely Postgraduate Degree (highest mean rank: 196.74) and High School (lowest mean rank: 77.14), and Bachelor Degree (second place mean rank: 191.4) to High School. No pairwise group was detected for education group in relate to built-up area and unit layout.

TABLE 4.29: MANN-WHITNEY U-TEST FOR GENDER & HOUSE ASPECT

Significant in Red Bold.	Mann-Whitney U	Z	Exact Significance (2-tailed)
Built-up area	16,896.5	-0.59	0.595
Land area	17,311.5	-0.15	0.893
Unit layout	17,119.5	-0.35	0.75
Maid servant room	16,706.5	-0.75	0.476
View of house	16,340.5	-1.14	0.287
Number of livings	15,088	-2.42	0.024
Number of bedroom with bath	16,460.5	-1.07	0.343

TABLE 4.30: KRUSKAL-WALLIS TEST FOR HOUSE ASPECT

Significant in Red Bold.	Age	Marital	Education	Occupation	Household Income
Built-up area	0.288	0.519	0.029	0.18	0.113
Land area	0.329	0.217	0.048	0.214	0.093
Unit layout	0.976	0.299	0.009	0.057	0.111
Maid servant room	0.477	0.005	0.236	0.293	0.153
View of house	0.71	0.756	0.33	0.175	0.16
Number of livings	0.278	0.286	0.29	0.545	0.73
Number of bedroom	0.014	0.98	0.073	0.654	0.561
Number of bedroom with bath	0.8	0.813	0.016	0.327	0.138
Level of significance: 0.05					

TABLE 4.31: DUNN-BONFERRONI TEST FOR HOUSE ASPECT

Significant in Red Bold .		pairwise group comparisons
Built-up area	Education	>0.05, No significant difference
Land area	Education	>0.05, No significant difference
Maid servant room	Marital	Single - Married
Number of bedroom	Age	30 - 39 years old - 50 - 59 years old
Number of bedroom with bath	Education	Bachelor Degree - High School Postgraduate Degree - High School

(C) Floor Size

Refer to table 4.32, the most preferred floor size is within 1,251sq.ft to 2,000sq.ft as chosen by 36.9% of respondents. It followed by 1,000sq.ft to 1,250sq.ft (29.95%), 2,001sq.ft and above (17.65%), 751sq.ft to 1,000sq.ft and the least preferred is below 750sq.ft. In term of gender, floor size 1,251sq.ft to 2,000sq.ft was the most preferred floor size for male group Whereas 1,000sq.ft to 1,250sq.ft is the most preferred floor size for female. Eventually, below 750sq.ft. and 750sq.ft. to 1,000sq.ft were almost equally preferred by both groups even though female were slightly higher in preference rate.

TABLE 4.32: GENDER & PREFERRED FLOOR SIZE

		What is your preferred floor size (in sq.ft)											
		Below 750 sq.ft		751sf - 1,000 sq.ft		1,001sf - 1,250 sq.ft		1,251sf – 2,000 sq.ft		2,001 sq.ft and above		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
Gender	Male	3	0.8%	26	6.95%	45	12.03%	82	21.93%	39	10.43%	195	52.14%
	Female	2	0.53%	27	7.22%	67	17.91%	56	14.97%	27	7.22%	179	47.86%
	Total	5	1.34%	53	14.17%	112	29.95%	138	36.9%	66	17.65%	374	100%

Refer to table 4.33, by looking into the two most preferred floor size, the age group between 20 to 29 years old and 60 years old and above, their most preferred floor size is 1,000sq.ft to 1,250sq.ft. Whereas age group between 30 to 39 years old, 40 to 49 years old and 50 to 59 years old, their most preferred floor size is 1,251sq.ft to 2,000sq.ft. This can be related to family circumstances whereby 20 to 29 years old and 60 years old and above may have

no or lesser dependents staying together compare to the other age range which fall under young family or full nest family (Tsou & Sun, 2021).

TABLE 4.33: AGE & PREFERRED FLOOR SIZE

		What is your preferred floor size (in sq.ft)											
		Below 750 sq.ft		751sf - 1,000 sq.ft		1,001sf - 1,250 sq.ft		1,251sf – 2,000 sq.ft		2,001 sq.ft and above		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
Age	20 - 29 years old	1	0.27%	10	2.67%	20	5.35%	13	3.48%	4	1.07%	48	12.83%
	30 - 39 years old	1	0.27%	26	6.95%	56	14.97%	72	19.25%	28	7.49%	183	48.93%
	40 - 49 years old	2	0.53%	11	2.94%	25	6.68%	30	8.02%	21	5.61%	89	23.8%
	50 - 59 years old	1	0.27%	5	1.34%	6	1.6%	20	5.35%	10	2.67%	42	11.23%
	60 years old and above	0	0%	1	0.27%	5	1.34%	3	0.8%	3	0.8%	12	3.21%
Total		5	1.34%	53	14.17%	112	29.95%	138	36.9%	66	17.65%	374	100%

In term of marital status, single group were the most preferred group to floor size between 1,000sq.ft to 1,250sq.ft. Whereas 1,251sq.ft to 2,000sq.ft was the most preferred floor size for the married group. Interestingly, the divorced / widowed group’s preference were more toward bigger size starting from 1,000sq.ft and above.

TABLE 4.34: MARITAL STATUS & PREFERRED FLOOR SIZE

		What is your preferred floor size (in sq.ft)											
		Below 750 sq.ft		751sf - 1,000 sq.ft		1,001sf - 1,250 sq.ft		1,251sf – 2,000 sq.ft		2,001 sq.ft and above		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
Marital Status	Single	2	0.53%	28	7.49%	44	11.76%	41	10.96%	7	1.87%	122	32.62%
	Married	3	0.8%	25	6.68%	66	17.65%	94	25.13%	57	15.24%	245	65.51%
	Divorced / Widowed	0	0%	0	0%	2	0.53%	3	0.8%	2	0.53%	7	1.87%
	Total	5	1.34%	53	14.17%	112	29.95%	138	36.9%	66	17.65%	374	100%

Refer to table 4.35, in relate to highest education level of respondents, as Bachelor Degree holder who were the dominant group in this study, they were the group most preference to all range of floor size except the least preferred size namely below 750sq.ft (zero selection). Secondary school level and Certificate & Diploma level holder, their preference were more to floor size 1,000sq.ft to 1,250sq.ft. Whereas floor size 1,251sq.ft to 2,000sq.ft. were the most preferred floor size within the group of Bachelor Degree and Post Degree holder.

TABLE 4.35: EDUCATION LEVEL & PREFERRED FLOOR SIZE

		What is your preferred floor size (in sq.ft)											
		Below 750 sq.ft		751sf - 1,000 sq.ft		1,001sf - 1,250 sq.ft		1,251sf – 2,000 sq.ft		2,001 sq.ft and above		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
Education Level	Primary School	0	0%	0	0%	0	0%	0	0%	1	0.27%	1	0.27%
	Secondary School	0	0%	1	0.27%	6	1.6%	2	0.53%	0	0%	9	2.41%
	High School	0	0%	0	0%	3	0.8%	3	0.8%	1	0.27%	7	1.87%
	Certificate & Diploma	2	0.53%	9	2.41%	20	5.35%	18	4.81%	8	2.14%	57	15.24%
	Bachelor Degree	0	0%	32	8.56%	61	16.31%	82	21.93%	43	11.5%	218	58.29%
	Postgraduate Degree	3	0.8%	11	2.94%	22	5.88%	33	8.82%	13	3.48%	82	21.93%
Total		5	1.34%	53	14.17%	112	29.95%	138	36.9%	66	17.65%	374	100%

Further refer to the household income, the lowest income group in this study were the most preferred to floor size in between 1,001sq.ft to 1,250sq.ft. Whereas the most preferred floor size 1,251sq.ft to 2,000sq.ft. in this study, the highest preference were still the lowest income group (10.7%), followed by income group above RM 14,001 (10.96%), RM6,100 to RM 10,000 (9.89%), and the last is RM 10,001 to RM 14,000 (5.35%). From table 4.36, it shown that when the income increase, the preference will be more toward bigger floor size.

TABLE 4.36: HOUSEHOLD INCOME & PREFERRED FLOOR SIZE

		What is your preferred floor size (in sq.ft)											
		Below 750 sq.ft		751sf - 1,000 sq.ft		1,001sf - 1,250 sq.ft		1,251sf – 2,000 sq.ft		2,001 sq.ft and above		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
Gross Household Monthly Income	RM 6,000 and below	1	0.27%	30	8.02%	49	13.1%	40	10.7%	8	2.14%	128	34.22%
	RM 6,100 - RM 10,000	4	1.07%	12	3.21%	36	9.63%	37	9.89%	20	5.35%	109	29.14%
	RM 10,001 - RM 14,000	0	0%	4	1.07%	12	3.21%	20	5.35%	12	3.21%	48	12.83%
	Above RM 14,001	0	0%	7	1.87%	15	4.01%	41	10.96%	26	6.95%	89	23.8%
	Total	5	1.34%	53	14.17%	112	29.95%	138	36.9%	66	17.65%	374	100%

4.7 Conclusion

The findings in this chapter were generated from the feedback by 374 respondents. Social-demographic background of the respondents were discussed and analysed toward the different house attributes in detail according to composition of locational attributes, neighbourhood attributes and structural attributes.

Housing preference attributes will be sorted in ranking and discussed starting from the most the least preferred level. Descriptive statistics and Kruskal-Wallis Test were used to analyse and identify the significant level different of these attributes across different social-demographic characteristics. Finding from the analysis were discussed and compare to the journal, article and report publish by reliable resources. When there is significant different (p-value <0.05) detected in Kruskal-Wallis Test, Dunn-Bonferroni Test will be conducted to identify the pairwise group in significant different between the social-demographic group. Finding will be discussed and research gap will be identified for future study.

As a result of this chapter, it is clear that social-demographic groups varied in their home preferences. The research revealed that the COVID-19 outbreak had an effect on homebuyers' preferences. In the chapter that follows, the various preferences will be covered in more detail.

CHAPTER 5

SUMMARY

5.0 Introduction

The main research results will be discussed in more detail in this chapter, building on the discussions from the previous chapter. Nevertheless, this study's ramifications and limitations will be discussed as well. Additionally, suggestions for future study that aims to get around the aforementioned limitations will be offered.

5.2 Discussion and Implication

Home as shelter is the basic needs of all respondents as explained by Maslow Hierarchy of Needs in earlier chapter. However, homeownership is subject to the willingness of respondents and depends on the homebuyer's preferences as it will be varied from one to another among different social demographic group. One of the examples in this study as shown in table 5.1, the highest probability will purchase a residential property in marital categories is single group (80.33% of single group) instead of the dominant group in this study which were the married group (79.18% of married group). Another example as refer to table 5.2 where it shown age group within 20-29 years old score the highest (91.67% of the same age group) in probability will purchase compared to 30-39 years old (85.90% of the same age group). Further analyse into age group, it shown that there are significant numbers of respondents were ready to be a homebuyer in future. Total 79.41% of respondents were considered to purchase residential property but only 41.17% of respondents were more certain in planning to purchase within a specific period such as within a year (9.89%), within 2 to 3 years (18.18%) and 3 to 5 years' time (13.1%). There are 38.24% of respondents who are considering to purchase but undecisive on target period at this moment. "Wait-and-see" approach could be their strategies to enter into the

residential market during this COVID-19 pandemic. Despite, there are 20.59% of respondents were decided not to purchase any residential property in future. Probability of these group of respondents already own a housing property or they were believed in debt-free lifestyle by way of avoiding the burden of mortgage loan repayment through alternative way such as renting a house. This result was supported by (Faraziera, 2019) that homeownership is getting harder nowadays due to the hike of house's price, which has led towards the growth of renting culture. It also recorded that percentage of renting a house was found increased (Department of Statistics Malaysia, 2020) as it without financially tie up for repayment of mortgage loan. Usually mortgage repayment is higher as the house prices is continued its growth (NAPIC, 2023) compare to rental. Anyhow, residential property transaction (homeownership) is still recorded as continuous growth in 2022 (NAPIC, 2023).

Owning a property is recognising as personal achievement (Chong & Omkar, 2017) or in other word it called feeling of accomplishment for a person as explained by Maslow Hierarchy of Needs. Buying a property is a huge decision for a person as it could impact on the homebuyer's financial and further impact on the basic need of the homebuyer especially if the investment on property was done improperly by the homebuyer. This concern was presented in this study during this COVID-19 pandemic where the group of respondents were increased their financial sensitivity in various dimension such as personal's financial and changes of BR / BLR set by BNM. However, the homebuyer shall carefully assess their affordability of repayment according to their financial capabilities. In this study, it shown that the preferred house price is at the range of RM300,000 to RM500,000 and RM500,000 to RM750,000. These prices were considered affordable to the homebuyers (refer to table 5.3) but it was found contradict with the guideline set by BNM in term of affordability (Bank Negara Malaysia, 2021).

As suggestion for the homebuyer who are targeting to own a house within a year, this group of homebuyer may explore the sub-sales market as well as the overhang properties in the market. By looking in to these tangible houses and assess whether these houses were in line with their preferences for the housing attribute in actual condition. This will help the respondents to shorten the time for searching and owning a house within their target timeframe provided their preferences were meet and financially supported. Whereas new properties were recommended to homebuyer who wish to own a house within 2 to 3 years'

time. There are advantages of buying a new residential property in primary market. All the new residential properties development were regulated and monitored by the Ministry of Local Government Development which required the property developer to deliver the house to purchaser within 2 years for non-stratified residential and 3 years for stratified residential, starting from the day of S&P executed. Among the low-rise residential categories, the most preferred house type in this study were terrace and semi-detached. However, house price usually higher for low-rise due to limited of land available in Klang Valley for lower density development. Thus, lower income group were recommended to look for the most preferred high-rise property in this study which is condominium. Higher income group may look for low-rise as well as the stratified low-rise which is Town House. Usually, stratified residential property will be having private facilities for the residents within the same housing area (Rabe, Osman, Abdullah, Ponrahono, & Aziz, 2021). In this study, the age group of 30s and married homebuyer shown significant preference in stratified residential property as they would able to enjoy these facilities within the same housing area without the need of travel to nearby recreation park by transportation. This group of homebuyers could be couple or young family as their characteristic were in line with the life-cycle stages mentioned by (Tsou & Sun, 2021). In that sense, this group of homebuyer may also explore their preferred residential property surrounding their work place. Buying a residential property closer to the work place were significant attributes as it managed to help the homebuyers to reduce their traveling time to / from work place as a way to reserve more time for family members.

Nonetheless, family circumstances of homebuyer were significant influence the homebuyer's decision in homeownership. In this study, it shown that changes in family circumstances will affect the intension of next purchase a new residential property. Refer to table 5.4, under the category of "for own stay purpose", it shown that if the family member increase from two to three persons, the intension of purchase to increase from 9.09% to 9.89%. Most significant increase presented when family member increase from three to four persons, the percentage of frequency hike up from 9.89% to 16.04%. From here, according to the family life cycle shared by (Tsou & Sun, 2021), we can assume that when a family transition from young couples (2 adults without children) who were just start up their family and subsequently change to young family (with 1 or 2 children), the intension to purchase for own stay were to accommodate more space required for more members. However, when family member increased beyond four persons, the intension of purchase

will not continue to increase further. This result probably to be the research gap for future study.

TABLE 5.1: MARITAL & PROPERTY PURCHASE IN FUTURE

		When do you consider to purchase a property in future?											
		Yes, within 1 year time		Yes, within 2 to 3 years time		Yes, within 3 to 5 years time		Yes, but not sure when		No.		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
Marital Status	Single	16	4.28%	25	6.68%	18	4.81%	39	10.43%	24	6.42%	122	32.62%
	Married	21	5.61%	43	11.5%	31	8.29%	99	26.47%	51	13.64%	245	65.51%
	Divorced / Widowed	0	0%	0	0%	0	0%	5	1.34%	2	0.53%	7	1.87%
	Total	37	9.89%	68	18.18%	49	13.1%	143	38.24%	77	20.59%	374	100%

TABLE 5.2: AGE & TARGET NEXT PURCHASE

		When do you consider to purchase a property in future?											
		Yes, within 1 year time		Yes, within 2 to 3 years time		Yes, within 3 to 5 years time		Yes, but not sure when		No.		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
Age	20 - 29 years old	6	1.6%	13	3.48%	11	2.94%	14	3.74%	4	1.07%	48	12.83%
	30 - 39 years old	20	5.35%	40	10.7%	27	7.22%	70	18.72%	26	6.95%	183	48.93%
	40 - 49 years old	7	1.87%	10	2.67%	9	2.41%	38	10.16%	25	6.68%	89	23.8%
	50 - 59 years old	3	0.8%	3	0.8%	2	0.53%	17	4.55%	17	4.55%	42	11.23%
	60 years old and above	1	0.27%	2	0.53%	0	0%	4	1.07%	5	1.34%	12	3.21%
Total	37	9.89%	68	18.18%	49	13.1%	143	38.24%	77	20.59%	374	100%	

TABLE 5.3: HOUSEHOLD INCOME & AFFORDABLE HOUSE PRICE

		What would be your affordable price range if you plan to purchase a residential property?					
		≤ RM 300,000	RM 300,001 - RM 500,000	RM 500,001 - RM 750,000	RM 750,001 - RM 1mil	≥ RM 1mil	Total
Gross Household Monthly Income	RM 6,000 and below	30	63	25	8	2	128
	RM 6,100 - RM 10,000	13	51	33	12	0	109
	RM 10,001 - RM 14,000	7	14	18	6	3	48
	Above RM 14,001	4	21	31	18	15	89
Total		54	149	107	44	20	374

TABLE 5.4: NUMBER OF FAMILY MEMBER & PURPOSE OF PURCHASE

		The main purpose of your next purchase is:							
		For own stay		For children		For investment		Total	
		n	%	n	%	n	%	n	%
Number of Family Member (include respondent under one roof)	One person	13	3.48%	1	0.27%	6	1.6%	20	5.35%
	Two persons	34	9.09%	4	1.07%	24	6.42%	62	16.58%
	Three persons	37	9.89%	10	2.67%	20	5.35%	67	17.91%
	Four persons	60	16.04%	12	3.21%	39	10.43%	111	29.68%
	Five persons	37	9.89%	6	1.6%	18	4.81%	61	16.31%
	Six persons and above	27	7.22%	6	1.6%	20	5.35%	53	14.17%
Total		208	55.61%	39	10.43%	127	33.96%	374	100%

Further analyse to identify the prospective homebuyers' rating in preference for housing attributes in Klang Valley, table 5.5 was computed in comparing with the research done the past study by (Tan T. , 2013). Housing attribute rank in the highest place was remained as good security of the housing area which include lower crime rate and gated guard community. Security concern among the respondents in this study resulted consistently with the past research by other as mentioned in chapter 2. After the impact of COVID-19, respondents were now more particular in good environment of housing area which include low pollution level and cleanliness of surrounding housing environment. This ranking found to be related with the proximity to highway which is the least preference, ranking at 17th in preference level (refer to table 5.5). Housing property in proximity to highway was

deem as good accessibility but it tends to have environment quality issue such as air and sound pollution, in addition, dusty environment. This concern by homebuyer is in line with the finding by (Lodge, et al., 2022) where it mentioned that highway and increase of traffic density has been tied to harmful health outcomes due to the increased exposure to polluted environment.

In term of structural attribute, the result shown that there was significant change in preference of bedroom design after COVID-19 pandemic. Currently, respondents were preferred to have bedroom with attached bathroom rather than just bedroom only. It represents the needs of a more complete functional bedroom if the bedroom was come with attached bathroom. Moreover, in COVID-19 pandemic, the need of bedroom with attached bathroom was rated significantly high preference level compared to bedroom without attached bathroom. It relatively due to the needs of room with non-sharing bathroom especially for home quarantine purpose when the member of the house was infected by COVID-19. In that sense, it explained on homebuyer preference which has changed to more concern on home unit layout design and the built-up area.

Massive growth of high-rise residential properties is expected due to rapid urbanisation in Klang Valley (Rabe, Osman, Abdullah, Ponrahono, & Aziz, 2021). Land availability for development has become very limit with higher land value (PLANMalaysia@Selangor, 2023). As land cost is one of the substantial costs in property development (Peter & Wamelink, 2007), thus, high-rise residential will more feasible option for property developer to build after taken into consideration of the increase of construction cost and land cost. In this regards, higher density / plot ratio developments especially high-rise residential has been allowed by the Selangor's state government starting from 9th of February 2023 (PLANMalaysia@Selangor, 2023). This new approval by PLANMalaysia of Selangor is to assist the property developer in overcome the impact of increasing land cost and ensure the continuous of residential supply to accommodate for the need of growing population. Therefore, these findings are considered in line with the result of this study as high-rise residential is significant preference type of residential in Klang Valley after Terrace (1st place) and Semi-D (2nd place). Nonetheless, unit layout for high-rise residential was fixed and not allow to alter or extension for extra space / build-up area due to the constraint of structure element for the entire building. In other word, high-rise residential was limited to the enhancement of the interior house only. In that sense, it is

reasonable when respondents rated unit design and built-up area as significant attribute when high-rise residential had no flexibility in room space extension like the landed non-stratified housing properties which had potentially for room's space extension on extra land.

As recommendation for property developer, regular study on homebuyers' preference for housing attributes shall be conducted especially before the design development stage of a project. Property developer shall look into these preferences of housing attribute, assess and blend it in to their new housing development. It will help reduce the risk of property developer in creating unsaleable product launch to the market due to mismatch in the demand and supply. Property developer shall also be creative in introducing the packages which may meet the needs / current market trend. For example, if prospective homebuyer preferred to rent rather than purchase due to financial capabilities of the homebuyer at this moment, rent-to-own could be the option for property developer to help them to own a residential. Some available rent-to-own programmed available in the market such as the "Home Ownership Programme for Employee" (HOPE) and "Flexible Rent-To-Own programmes" (FRTO) introduced by "Homevest Sdn Bhd", "the HouzKEY scheme" by Maybank, "PRIMA rental homes" by PRIMA and "Skim Smart Sewa to Ownership (2STAY)" by the Selangor state government.

TABLE 5.5: MEAN RANK OF HOUSING ATTRIBUTES COMPARISON THE PAST & PRESENT

Housing Attributes	(Tan, 2013)		Author	
	Mean	Rank	Mean	Rank
House has good security (e.g. Gated and Guarded, lower crime rate)			4.35	1
Lower crime rate	4.42	1		
Gated and Guard	4.40	2		
House has good environment quality.			4.3	2
Cleanliness	4.11	3		
Pollution	3.91	9		
Number of bedroom with bath(s).			4.09	3
Number of bathroom	3.45	15		
Unit design layout.			4.02	4
Land area,			3.94	5
Built-up area	3.50	14	3.93	6
Proximity to work place	4.02	5	3.9	7
View of the housing area (e.g. North, South direction)	3.15	17	3.69 (SD: 0.91)	8
Proximity to public transport	4.05	4	3.69 (SD: 0.89)	9
Proximity to commercial	3.70	11	3.68	10
Number of living room(s)			3.63	11
Size of kitchen	3.57	13	(SD: 0.89)	
Proximity to recreation park	3.96	7	3.63 (SD: 0.83)	12
Near to the hospital/clinics.			3.51	13
Close to my family/relatives			3.46	14
Proximity to Primary / Secondary / High School	4.02	6	3.44	15
Proximity to Pre-school / Day care Center	4.02	6	3.29	16
Closed to highway			3.25	17
Proximity to Tertiary School, I intend to buy it.			3.23	18
Number of bedroom	3.86	10	3.13	19
Availability of maidservant's room			2.92	20

As for the policy maker, they had important role in helping the property developer to reduce the overhang properties in the market. Aside of various sales incentives introduced by the property developer to boost up the take up rate of residential housing, the policy maker shall collaborate with the property developer to combat with the issue of overhang residential property. For example, HOC was an initiative by the government to support the homebuyers in buying a residential property (KPKT, 2019). In this study, the result was found in line with the HOC programme initiated by the government as homebuyer shown interested to purchase residential properties launched by the property developer especially if the property is subject to HOC programme. In that sense, policy maker shall introduce more attractive incentive to increase homeownership rate and simultaneously to tackle the overhang residential project in the market. On the other hand, policy maker shall strategies to improve the public transportation as another initiative to enhance the residential area nexus with the surrounding amenities according to the need of homebuyer by referring to the updated homebuyers' preferences. Furthermore, government shall also improve the security level of in the country by lower down the crime rate as it is the significant important concerned by the homebuyer.

In summary, property developer shall aware of the latest preference of the homebuyer by conducting regular survey before new property launching to the market. Through this effort, property developer will able to create a residential development which are competitively advantage in market as it met the needs and preference of homebuyer. Any shortfall of effort beyond the property developer role in meeting the homebuyers' preference, property developer may bring up their collective proposal to the policy maker through REHDA. REHDA's role is to ensure that developers' opinions will be reaching to the relevant authorities and government agencies (REHDA, 2023). By doing so, it will help the industry players to combat and reduce the overhang residential properties in the market effectively rather than continue producing mismatch product to the market due to project feasibility constraint. In other word, property developer shall work closely with the policy maker order ensure the preference of homebuyer will be incorporated into the new policy.

5.3 Delimitation

In this study, general categorical of social demographic group were used to examine the housing attribute namely locational attributes, neighbourhood attribute and structural attributes identified from the literature review. Homebuyers' preferences was identified based on general knowledge / experience of respondent about residential properties either from primary market, secondary market, or both markets in Klang Valley. Moreover, this study was also not specific relate to the land use constraint by the government such as Malay reserved land and "bumi" quota. For example, different group of respondents in analysing homebuyers' preferences would be different and inappropriate to use for the development on Malay reserve land. Therefore, it is suggested to the property developer to conduct a detail study in order to identify the homebuyers' preferences according to the specific study area and distributing survey to the targeted customer segment.

On the other hand, there are limitations in relate to online survey and sampling technique such as the population of respondents were hardly to be described and respondents could be biases in answering the questionnaire. However, this is the most suitable technique and platform for current study due to the constraint from COVID-19 outbreak whereby face-to-face may not be comfortable accepted by respondents and random sampling is hardly being conducted due to impossible of getting the whole population of homebuyers.

5.4 Future Studies

The changes in homebuyers' preference after the impact of COVID-19 outbreak were identified in this study and properly examine by comparing it to the past study by other researchers. Some of the changes required further exploration / examination by different approaches. In this regard, there are few suggestions for future studies as follow.

First is to focus on the homebuyers' preferences on certain house typologies. In view of the stratified high-rise residential properties were toward the increase volume in the residential marking in Klang Valley, knowledge of the market players in differentiating the type of residential is important. It is often finding that homebuyer regrets about their buy/rent decisions due to insufficient and inappropriate information provided to them (Ullah, Sepasgozar, & Wang, 2018). For example, service apartment and condominium are popular in the market and these two residential properties could be hardly to differentiate by the homebuyer. Eventually, service apartment and condominium are not the same in term of

land use. Service apartment is building on commercial land whereas condominium is on residential land. In that sense, this difference may impact on the homebuyer in future as their unit will be charged based on different rate / tariff especially on utilities charges, quit rent and assessment. Therefore, the differences between the service apartment and condominium shall be identified and examine whether it affect the homebuyer's preference.

Second is relate to the homebuyers' perception of affordable house and property developer's limitation in delivering affordable houses. It is a challenge to accommodate the homebuyers' preference in residential property as it would end up with non-affordable range of residential development produce to the market due to cost constraint. Affordable house with control price by the government (for example "Rumah Selangorku"), there is no different in term of contribution to government bodies / agencies and also the development's charges compare to non-control price of residential property. In this case, it would be creating a resistance to property developer in building affordable house as it could be non-profitable project. To overcome the issue, the price for normal of residential properties will continue increase as to absorb the cost for building affordable house. Therefore, there is a need for policy maker to review on government charges on to property developer when condition to property developer to build affordable home at control price. Beside from imposing condition to property developer to build affordable house, policy maker shall also condition to the utilities supplier such as Tenaga Nasional Berhad (TNB), Indah Water Consortium (IWK) and Air Selangor (AIS) to waive their contribution fees for all affordable house at control price either by the developer of the government link agencies such as PRIMA and Kumpulan Hartanah Selangor. Property studies shall be conducted, study the impact and present to the policy maker to seek for more feasible solution for affordable house.

Third is to investigate the opinion of market players in relate to residential preference for housing attributes. Extrinsic and intrinsic of housing attributes would be varies between the homebuyer and property practitioner as research done by (Mulliner & Algrnas, 2018) in Saudi Arabia context. The similar study could be conducted in Malaysia context based on local culture. The studies can be further explore to specific region for example northern region, center region and southern region. Proper examine the opinion between the homebuyers and property practitioners views will provide a clear understanding about the different factor influencing the concern between the homebuyer and property practitioner.

Lastly is to enhance the survey collection method. Survey could be conducted by face-to-face method by using the same set of questionnaire design for this study. Face-to-face survey had the advantage of explaining all survey questionnaire to the respondents. Respondents' query during answering the questionnaire will be clarified by the interviewer. This will help to ensure the respondents are fully understand the questions and increase the accuracy of answer. Sufficient period of survey shall be properly plan to ensure appropriate numbers of sample can be collected. Face-to-face method enable the survey to be conducted to the right target group of respondents in relate to the population ratio. Nonetheless, face-to-face interview is subject to the situation of COVID-19 in the country, either under control or when endemic stage.

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APPENDICES

SURVEY QUESTIONNAIRE

Impact of Covid-19 on Residential Preference in Klang Valley

Dear Respondents,

I am currently pursuing Master in Business Administration from the Faculty of Accountancy and Management of University Tunku Abdul Rahman (UTAR). The questionnaire is part of the course requirement for the completion of my final year project.

This survey is being conducted to gain a better understanding in conjunction to complete the research in 'Impact of Covid-19 on Residential Preference in Klang Valley'. To help us have a better understanding about your view, please take 5-10 minutes to complete and return this questionnaire.

There is no right (or) wrong answer. Your response will be kept confidential. For any suggestion and inquiries in relation to this survey, please do not hesitate to contact the researcher via email: hwantp@utar.my.

We appreciate your voluntary participation and give your valuable inputs in the following research survey entitled.

Thank you for your time and your input in this research.

Best Regards,
Hwan Tiong Piow
21UKM02581

Voluntary participation

You understand that participation in this study is voluntary and that if you decide not to participate, you will experience no penalty or loss of benefits to which you would otherwise be entitled. If you decide to participate, you may subsequently change your mind about being in the study and may stop participating at any time.

Confidentiality

1. I have read or have the information above read to me, in a language understandable. The above content has been fully explained to me. I voluntarily consent and offer to take part in this study. I certify that all information I have given is true and correct to the best of my knowledge. *

- Agree
 Disagree

2. I will not hold UTAR or the research team responsible for any consequences and/or liability arising from my participation in this study. *

- Agree
 Disagree

Section A - Demographic

3. Gender *

- Male
- Female

4. Marital Status *

- Single
- Married
- Divorced / Widowed

5. Education Level *

- Not receiving formal education
- Primary School
- Secondary School
- High School
- Certificate & Diploma
- Bachelor Degree
- Postgraduate Degree

6. Age *

- 20 - 29 years old
- 30 - 39 years old
- 40 - 49 years old
- 50 - 59 years old
- 60 years old and above

7. Occupation *

- Government staff
- Private Employee
- Business owner
- Retired
- Unemployed

8. Gross Household Monthly Income *

- RM 6,000 and below
- RM 6,100 - RM 10,000
- RM 10,001 - RM 14,000
- Above RM 14,001

Section B - Family Circumstances

9. Living Condition *

- Single with parent
- Single staying alone
- Single staying with friends
- Married without children
- Married with children

10. Number of Family Member (include respondent under one roof) *

- One person
- Two persons
- Three persons
- Four persons
- Five persons
- Six persons and above

11. Do you have any dependent living with you? (You may choose more than 1 option) *

- I have toddler (\leq 4 years old)
- I have children aged 5 to 12 years old
- I have adolescents aged 13 to 19 years old
- I have elderly living with me
- No, I don't have any live-in dependents

12. Do you own a house? *

- Yes, I am the sole owner
- Yes, I am co-own the unit with others
- No, I am staying with parents, sibling or friends
- No, I rent a house

13. Length of stay in the current property *

- 1 - 5 years
- 6 - 10 years
- 11 - 15 years
- 16 - 20 years
- Above 20 years

14. When do you consider to purchase a property in future? *

- Yes, within 1 year time
- Yes, within 2 to 3 years time
- Yes, within 3 to 5 years time
- Yes, but not sure when
- No.

15. If you are considering to make a purchase of property, will you move out from your current neighbourhood? *

- Yes, I am considering moving to another neighbourhood
- No, I will look for property within the same neighbourhood

16. The main purpose of your next purchase is: *

- For own stay
- For investment
- For children

17. Your preference to purchase of residential property from: *

- New property
- Sub-sales
- Either

18. What would be your affordable price range if you plan to purchase a residential property? *

- ≤ RM 300,000
- RM 300,001 - RM 500,000
- RM 500,001 - RM 750,000
- RM 750,001 - RM 1mil
- ≥ RM 1mil

Section C - House Aspect

19. What is the most preferred type of residential property that you intend to purchase? *

	Least Preferred	Not Likely to Choose	I Don't Mind	I Can Consider	Most Preferred
Terrace house	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Semi-detached house	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Detached house or bungalow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apartment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Condominium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Town house	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Others than above	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. What is your preferred floor size (in sq.ft) *

- Below 750 sq.ft
- 751sf - 1,000 sq.ft
- 1,001sf - 1,250 sq.ft
- 1,251sf - 2,000 sq.ft
- 2,001 sq.ft and above

21. Please select the statements that are related to your preferred residential property. *

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
I am concern about the built-up area when buying a house in Klang Valley.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Land area has an impact to me when buying a house in Klang Valley.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would consider the residential unit design layout when buying a house in Klang Valley.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would consider the availability of maidservant's room when buying a house in Klang Valley.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would consider the view of the housing area (e.g. North, South direction) has an impact to me when buying a house in Klang Valley	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. Please select the statements that are related to your preference in room provision. *

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
I would consider the number of living room(s) when buying a house in Klang Valley.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would consider the number of bedroom when buying a house in Klang Valley.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would consider the number of bedroom with bath(s) when buying a house in Klang Valley.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section D - Financial

23. Preferred payment method *

- Cash
- Cash & mortgage

24. I am willing to allocate percentage of income to financing the property. *

- Below 20%
- 20.1% - 30%
- 30.1% - 40%
- 40.1% - 50%
- 50.1% and above

25. Preferred loan tenure *

- Below 10 years
- 11 - 15 years
- 16 - 25 years
- 26 - 30 years
- Above 31 years

26. Please select the right statements about you. *

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
I have enough saved for the down payment and other upfront costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would consider the effects of Real Property Gains Tax (RPGT) when I make a decision to invest in a residential property during COVID-19 pandemic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would consider the Base Rate / Base Lending Rate when I make a decision to purchase a residential property during COVID-19 pandemic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would consider the importance of Mortgage Loan to Value Ratio when I make a decision to invest in a residential property during COVID-19 pandemic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would consider the availability of Homeowners hip Campaign when I make a decision to invest in a residential property during COVID-19 pandemic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to get 90% loan to purchase housing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

during
COVID-19
pandemic.

I am able to
pay a
premium for
housing
during
COVID-19
pandemic.

I am eligible
to get bank
loan during
COVID-19
pandemic.

Section E - Location, Neighbourhood / Environment

Please tell us more about your preference in relate to location, neighbourhood and Environment

27. Please rate the importance of neighbourhood amenities criteria when you are considering to purchase a house. *

	Not applicable	Least important	Less important	Important	Most Important
If a house is at proximity to Pre-school / Day care Center, I intend to buy it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a house is at proximity to Primary / Secondary / High School, I intend to buy it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a house is at proximity to Tertiary School, I intend to buy it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a house is at proximity to work place, I intend to buy it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a house is at proximity to commercial, I intend to buy it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a house is at proximity to public transport, I intend to buy it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a house comes with good location, I intend to buy it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a house is closed to highway, I intend to buy it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am interested to buy a house that is close to my family/relatives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will consider buying a house if it is near to the	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

near to the
hospital/clinics.

If a house is
at proximity
to recreation
park, I intend
to buy it.

If a house has
good
environment
quality, I
intend to buy
it.

If a house has
good security
(e.g. Gated
and Guarded,
lower crime
rate), I intend
to buy it.

If a house is
at a good
distance from
all amenities,
I intend to
buy it.