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Designing Affordable Urban Ecosystems: A Quantitative Model to Enhance the Quality of Life for the Urban Poor in Malaysia Through Employment, Housing, and Digital Access

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Abstract: Urban poverty remains a critical challenge globally, with Malaysia serving as a prominent example of the pervasive struggles faced by the urban poor. These populations are particularly burdened by unaffordable housing, limited access to stable employment opportunities, and inadequate digital and public services. Despite the implementation of policies such as the National Housing Policy and the National Urbanization Policy, these issues persist, exacerbated by the escalating costs of living and the lack of effective support systems. This study presents a comprehensive model aimed at improving the urban poor's quality of life (QOL) in Malaysia by integrating key elements of sustainable urban development. A quantitative research methodology was employed to collect data, focusing on the critical factors of employment, affordable housing, transportation, healthcare, education, and digital access. The findings underscore the importance of a holistic approach to urban poverty alleviation, which prioritizes the availability of affordable housing located near essential amenities, coupled with reliable transportation, accessible healthcare, and educational services. Furthermore, it was identified that community participation plays a pivotal role in enhancing housing outcomes, with increased engagement linked to better planning and the development of more inclusive and livable urban environments. Key contributors to improved housing participation (HP) were found to include the provision of affordable housing (AH), the development of accessible transportation systems (AT), the availability of essential facilities (AF), environmental initiatives (EI), and heightened public awareness (AD). These factors collectively demonstrate that improvements in infrastructure, access to essential services, and community involvement are critical to achieving sustainable urban development. This model offers a framework that can be applied not only in Malaysia but also in other urban contexts globally, providing a pathway to reduce urban poverty and improve the well-being of urban populations.

Keywords: Affordable housing (AH); Community participation; Malaysia; Sustainable cities; Quality of life (QOL); Urban development; Urban poverty

1. Introduction

Urban poverty is a critical issue affecting millions globally. The issue has a significant impact on Malaysia, where the urban poor struggle with unaffordable housing, limited employment opportunities, and inadequate access to essential services. The rising cost of living disproportionately affects the B40 income group, the bottom

40% of earners, exacerbating the cycle of poverty. Despite existing policies like the National Housing Policy and the National Urbanization Policy, these difficulties persist and remain prevalent throughout the country.

The issue of urban poverty in Malaysia is multifaceted and demands immediate attention. One of the primary concerns in housing affordability (AH) is the 'seriously unaffordable' residential prices for low-income earners. This leads to difficulties in obtaining mortgage loans and results in households being overburdened with mortgage repayments. Moreover, the financial strain limits the amount of disposable income for necessary goods and a sustainable lifestyle. Current housing developments often prioritize luxury properties, leaving affordable options scarce and out of reach for many. This disparity has intensified the housing crisis, underscoring the urgent need for inclusive and sustainable housing policies (Malek & Mohamed, 2022). Fragmented urban planning strategies and insufficient community involvement limit the effectiveness of existing solutions (UN-Habitat, 2020; World Bank, 2019). Hence, there is a critical need for a comprehensive model that addresses these challenges by integrating housing, employment, healthcare, transportation, and other essential services. Such a model should also empower communities to participate in the decision-making process in order to foster a sense of ownership and promote long-term sustainability (Haldane et al., 2019).

According to prior research on urban poor affordability, low-cost housing in Malaysia has numerous problems. For instance, the development of these residential properties relates to lax enforcement and unplanned urban growth that results in significant supply-demand mismatches and increased development input costs (Daud et al., 2022). According to Wahi et al. (2018), urbanization and housing pressures on the more affordable end of the housing market have been escalated by an internal migration wave, with many rural migrants having now moved to cities to seek employment. Even though the government has initiated low-cost housing schemes, issues continue to be observed in high-rise developments (Wahi et al., 2018). The middle- and upper-income groups dominate the landed property segment of the supply, whereas the low-income earners are largely reliant on high-rise buildings. The situation leads to higher competition for these properties, creating a supply-demand mismatch. As indicated by the literature, the concept of a sustainable future township model around the Greater Kuala Lumpur region, which includes shared facilities, amenities, and green areas, shows a potential to create a desirable living environment whilst reducing social problems (Aziz & Zulkifli, 2018).

Although the National Urbanization Policy and the National Community Policy are designed to improve living standards and QOL, they are falling short of meeting the needs of the urban poor. Until today, these groups continue to have a lack of access to health facilities, educational opportunities, and reliable transportation (Kuddus et al., 2020). The reason is that these policies do not adequately address the need for various housing options in urban development projects nor ensure that affordable housing is located near essential amenities like workplaces, schools, and hospitals (Cattaneo et al., 2022; Kuddus et al., 2020).

Most of the prior research on this topic is directed toward affordable housing, with little to no consideration for those residing in low-income urban areas. This research aims to bridge that gap by proposing an integrated framework that enhances living conditions for the urban poor while remaining economically viable. The proposed model integrates factors such as employment, housing, transportation, smart city initiatives, health, education, and nutrition, with a strong emphasis on community participation. It is anticipated that through the involvement of the community in the planning and implementation of these diverse elements, the study can create a sustainable framework that not only addresses housing needs but also ensures access to necessary amenities and services. The outcomes of this study will provide valuable insights for policymakers, urban planners, and community groups, supporting the development of inclusive and efficient urban strategies. This comprehensive approach aspires to elevate the standard of living for Malaysia’s urban poor and serves as a replicable model for other nations facing similar challenges.

2. Literature Review

2.1 Quality of Life and Urban Poverty

2.1.1 QOL

QOL refers to the general well-being of individuals and communities. This includes both positive and negative dimensions of life as well as aspects such as religious values, employment, income, education, environmental factors, security, equity, physical health, and family factors. Historically, QoL has been associated with economic indicators like the cost of living, price indices, and GDP. A country's success or failure depends on the economic development rate. Correspondingly, when the growth rate is high, it shows that there are improvements in the state of the economy in terms of industrial production, import and export, and foreign investment (Rokicka, 2013; Roslan et al., 2019). From an economic perspective, a higher level of well-being is associated with higher income. When income increases, the rate of consumption to satisfy the different needs of an individual will also increase, which, in turn, propels the standard of well-being to a higher degree. The microeconomic theory states that an income increase is directly associated with human well-being. This is the reason why economic growth is an important objective in every country (Frijters et al., 2020; Roslan et al., 2019).

In an urban environment, QOL relates to both individual well-being and the overall quality of the community (MacLean & Salama, 2019). It involves factors such as community satisfaction, livability, sustainability, residential contentment, environmental quality, and place quality. Additionally, all components of urban environments, whether social, economic, physical, natural, or built, play an important part when discussing the QOL issues in cities. In other words, QOL explains the multiscale concept that touches on individuals and society's conditions. It is also defined by the positive or negative well-being of the future expectations of the people (MacLean & Salama, 2019).

2.1.2 Malaysian context of QOL

QOL is affected by a variety of factors. In the aspect of economics, especially those related to health or work/life balance, Malaysians overall have moderate to high QOL satisfaction, as discovered in multiple studies (Osman et al., 2019; Rabe et al., 2018). As for the socioeconomic determinants, including income, transportation, and housing, these aspects, more often than not, account for the majority of predicted variance in QOL perception (Osman et al., 2019). In terms of health, a study on women with breast cancer found that the QOL of these patients changes according to clinical factors, physical side effects, psychological symptoms, and low self-esteem (Akhtari-Zavare et al., 2018). For job satisfaction, Malaysian workers from different industries reported high satisfaction levels in their respective work environments, family life, and relationships with colleagues (Mazlan et al., 2018). In particular, the workers in the agriculture industry were reported to have excellent QOL, with male respondents having higher work-life quality than females (Mazlan et al., 2018).

2.1.3 Urban poverty

Poverty is a socioeconomic phenomenon that adversely affects people's economic activities. To understand poverty, the analysis must start with income and household expenditure. Poverty is defined as the inadequate total earnings to obtain the minimum necessities for sustaining "mere physical efficiency," including food, rent, and other products (Roy & Meera, 2020). A study conducted by the Social Security Administration in the United States classifies households as poor if their income is less than three times the local cost of a nutritionally adequate food budget (Randles, 2022). Apart from not having enough food, shelter, and clothing, other factors, such as difficulty accessing educational facilities, poor housing quality and physical infrastructure, and lack of access to healthcare and policing services, are also considered when discussing the topic of urban poverty. If no immediate solution is implemented to resolve the issue, individuals, households, and societies will become vulnerable, impotent, excluded, and subjected to poor exploitation (Benjamin & Chinyakata, 2023). Most urban analysts emphasize the link between urbanization and poverty with a simple explanation. They measure and assess individual and community well-being using the Multidimensional Poverty Index (MPI), a parameter introduced by the UN to understand and address poverty in ways other than income. The MPI examines multiple deprivations that people face simultaneously, including health, education, and standard of living indicators (Abdul Rahman et al., 2021; Oyebamiji & Khan, 2023).

2.2 Current Economic Strategies in Tackling Urban Poor Issues

As of now, there are a few housing policies that have been implemented in Malaysia, such as the National Community Policy, National Housing Policy, National Urbanization Policy, and Malaysia National Housing Policy. Nevertheless, even with these policies, the urban poor remain suffering and struggling to meet their daily needs and to get a better QOL. The research conducted by Osman et al. (2020) found that most respondents agreed that AH is a pressing issue, not just in Malaysia but also in other countries. Currently, residential property prices in Malaysia are deemed 'seriously unaffordable,' and this makes it difficult for low-income earners to obtain mortgage loans. Furthermore, the study revealed that housing prices have been increasing every year, slowly and surely widening the gap between property costs and income levels in Malaysia. Due to these problems, some households have huge portions and are overburdened with mortgage repayment, causing the household not to have sufficient disposable income for necessary goods and a sustainable lifestyle.

Poverty in developing countries, particularly in urban areas, is more dynamic than in rural areas due to the following reasons: First, the problem of rural poverty is perhaps more recognizable, while urban poverty is more nuanced by unhealthiness and scarcities of basic services (Rosida, 2018). Secondly, the unconditional growth of cities in Africa, Asia, and Latin America has had an undeniable impact on raising the poor populations, especially those in urban areas, food needs, stable income, adequate and safe shelters, basic amenities, and personal security, hence necessitating policies catering to these needs. The poor are sidelined by urban development, thereby fueling social inequity and constraint of equity regarding the available job openings (Mutsaa & Magidimisha, 2021). Although informality is a fundamental strategy through which the urban poor meet their needs, it is characterized by low political power and service provision (Mutsaa & Magidimisha, 2021). Globalization impacts the poor and the rich in the urban areas, pulling social imbalances and health issues in both the developed and the developing countries (Kuddus et al., 2020). Solving these problems requires embracing diversity and using revolutionary

strategies in the management of cities (Mutsaa & Magidimisha, 2021).

In many of the developing countries, such as India, Kenya, and Bangladesh, the key theme has focused on making basic amenities, quality housing, and city structure and design. For instance, World Bank-funded programs focus on enhancing the capacity of the local government, the development of and integration of transport networks, as well as accessibility to water and sanitation. International Development Association (IDA) type ideas focus on reducing urban poverty by introducing job creation and enhancing infrastructures within regions that lack those elements. While there have been some advances in financing and equitable service delivery in the full completion of the growth of African cities, informal settlements as a result continue to lag major services such as electrification and health facilities (World Bank, 2023). On the other hand, it is expressed that developed countries pay more attention to combating inequality of income distribution and improving social mobility. Local authorities and governments dedicated substantial amounts to finance social rents or purchase properties for accommodation's social purposes, with commitments to transport and homeless strategies. Cities in Europe and North America also continue striving for green and socially sustainable development. For example, in the European Union, frameworks such as the Urban Agenda compel member states to cooperate on matters such as affordable housing and urban sustainability (Fentaw, 2022; World Bank, 2022).

The National Urbanization Policy and National Community Policy have addressed a few strategies that focus on increasing the living standard and QOL for the community. Nevertheless, even after their widespread implementation, poor people still face similar problems. Their level of QOL remains unchanged as they struggle to access nearby health facilities, send their children to school, and deal with transportation issues. QOL mainly touches on housing, education, income, employment, and health. According to some studies, AH is the main problem that the urban poor encounter. Upon analyzing these policies, no strategies have been found to provide a variety of housing choices for housing development projects in urban areas. As mentioned previously, most housing developments in urban areas are for luxury homes, which are not affordable for the poor and middle-income groups. In Malaysia, there exists a disparity between the demand for housing and the available supply, with the housing market unable to meet the need for affordable housing adequately. This phenomenon is caused by the lack of transparency in dealing with housing projects. As such, strict enforcement is needed in housing policies to address the critical issues. Other than that, affordable housing should be situated near workplaces and have convenient access to essential services like schools and hospitals. This proximity ensures that the chosen locations for affordable housing are suitable and technically feasible for a better living environment and improved QOL (Roslan et al., 2019).

2.3 Necessity in Developing New Model of Affordable City in Improving Urban Poor QOL

Urban theory explains the phenomenon of community creation where economic interests prevail to promote the propensity of the city to create and accumulate resources. Any permanent spatial investments, large resource allocations, and financial investments are involved in such urban formation, and these can only be recovered if planned future revenue transpires. In urban planning, therefore, it is a valid concept. Urban historians were some of the earliest to recognize the significant role of technology in building sustainable cities. In the context of globalization, there is a strong imperative to design urban spaces that align with the global economic framework to achieve prominence in urban economics.

Recent studies discuss the problems of employing the existing conceptual models of urban development, which heavily focus on infrastructural-related aspects at the cost of the social ones. Mohsin et al. (2023) highlight the importance of the frameworks that include stakeholder feedback and consider local issues. Chan et al. (2022) stated that intangible effects on communities and social sustainability do not have benchmarking values in current assessment frameworks. The City Dependency Model suggested by Reiner & Rouse (2018) can be used to further refine the relationship between infrastructure systems and generic resiliency and sustainability perspectives, as well as the social-physical dimensions. Mohamed et al. (2019) critique the existing concepts of social development because they are more oriented toward the physical and material reality than toward social aspects. Taken together, these studies suggest that there is a timely need to develop frameworks that provide much more than structures and technical solutions, but they also take into account people, social relationships, and context for sustainable urban development.

Based on the literature, some researchers suggest that the government's existing practices (policy and program) are inadequate and deficient in increasing the standard of living and QOL, especially for poor households (Mahazril et al., 2022). Therefore, the Malaysian government needs to adopt a more holistic approach that focuses on affordable housing and poverty issues. This approach should emphasize the design, security, and maintenance of living quarters for the urban poor (such as flats), as well as improving childcare systems, enhancing transportation options, and providing family planning and health education for young mothers. Additionally, it is important to revise the indicators used to determine poverty. Since the urban poor are the most affected, the government should introduce a specific new model for an affordable city that can enhance their QOL. Current planning approaches towards urbanization heavily focus on physical components of growth as opposed to the social and community

components. Although it demands efforts for developing physical facilities, advancement in physical capital does not mean upward mobility in terms of QOL. Most of the frameworks developed neglect to incorporate public participation and social inclusion in developing sustainable urban spaces. Decisions are made at various levels of government with little or no input from the targeted communities, hence solutions that are usually not preferred. In addition to excluding the urban poor from the process of constructing city improvements and making them actual stakeholders in the improvement of their cities, this top-down organized strategy disorients them and decreases their involvement in the process of urban improvement.

Addressing an affordable city is an initiative to achieve a city that facilitates equal opportunities for people with poverty and rich to be able to afford an outfit such as a house, jobs, health facilities, school, and even means of transport, among others (Kim & Wachter, 2020; Mahendra et al., 2021). Despite considerable advancement in the theory and practice of urban planning and policy, the issue of affordable cities in enhancing the standard of living of the growing number of poor and vulnerable households in cities has not received the adequate attention it requires (Mahendra et al., 2021). Existing research on affordable cities tends to focus on one or two aspects of the people's lives, like housing, thus leaving other important factors like work, health, mobility, and technology unplugged. The urban poor experienced several challenges, and working on one challenge only proves to be inadequate in solving the problems. For instance, while the provision of affordable houses enhances QOL, they may not be constructed near places of work and may have no access to transport or health facilities. The absence of a comprehensive strategy that can target multiple issues at one time affecting a population is likely to be less effective in deprivation impacts on the urban poor (Kopf, 2020; Patel et al., 2020).

Addressing this gap in this study can significantly contribute to developing effective and sustainable models for affordable cities, ultimately enhancing the living standard of the urban poor in every nation. This new approach will also allow for rigorous and innovative studies that consider the diverse and complex realities of urban poverty.

2.4 Relevant Theories

2.4.1 Human Ecology Theory

Ernest Burgess, a sociologist, established Human Ecology Theory, which explores the dynamic link between human populations and their physical settings. The theory focuses on how individuals and groups adapt to and interact with their urban environments, as well as how the environment influences social organization and behavior. The idea employs the Concentric Zone Model, which views cities as concentric circles with distinct social and economic purposes. This perspective also proposes ecological succession that suggests cities vary over time due to population movements and land use changes. To date, the theory has found its application in urban planning, community dynamics, policy formulation, social transformation, and geographical analysis, where it has helped researchers and planners create efficient and socially equitable cities. On top of that, the idea emphasizes the interdependence between humans and their environment, shaping health, well-being, and cultural development.

2.4.2 Spatial Mismatch Theory

Spatial Mismatch Theory is a concept in economics and sociology that examines the imbalance between where people with lower incomes reside and where available jobs are situated. It also points to issues that arise from the geographical separation, especially the ones that can limit access to employment. Proposed by economist John Kain in the 1960s, the theory implies that there is frequently a considerable spatial gap between impoverished urban people and work prospects. Key concepts include geographic discrepancies between impoverished communities and job opportunity areas, transportation difficulties, and greater unemployment rates among the urban poor. The theory also emphasizes the labor market's economic inefficiencies, as competent workers may struggle to find work. At the same time, companies may also struggle with a similar issue of locating suitable employees. Both of these difficulties, in turn, result in the underutilization of human capital. The spatial mismatch is frequently considered a cyclical problem and is deemed as the reason for economic disadvantage in impoverished neighborhoods.

2.5 Use of Indicators

2.5.1 Indicators for urban poor QOL

The term "urban poor QOL" refers to the living conditions, well-being, and overall standard of economically disadvantaged individuals or communities in urban areas with restricted access to resources and services. The social and cultural context, including the features of the physical surroundings, determines how individuals perceive their QOL (Wesz et al., 2023). In this study, the QOL was assessed across four areas: physical health, feelings of safety, available social networks, and participation in community or social events.

2.5.2 Indicators as tools for affordable city in improving urban poor QOL

Affordability is not just about the cost of buying or renting a home; it also means being able to live comfortably

in it (Gabriel & Painter, 2020). This concept includes both maintenance and utility costs, as well as easy access to transportation, infrastructure, and essential services. A home cannot truly be considered affordable if, despite its low cost, it is far from job opportunities, schools, or public transportation (Dewita et al., 2020; Dodson et al., 2020; Hartell, 2017; Yang et al., 2019). One approach that can reduce the cost of living in a city is good urban planning. Today, a peculiar situation has been created across many urban cities, where a city cannot survive without the services of the poor, but its structure does not consider their needs (Favilukis et al., 2023; Moroke et al., 2020). In conclusion, an affordable city is one that provides residents with the opportunities to work, learn, and live in communities that are both affordable and accessible.

i. Employment and Income

According to research, job skills training programs can benefit the urban poor by increasing the number of employed people and their income (Suparmono, 2021). However, the efficiency of these programs is usually restricted by the individual skill level. In addition, having adequate transportation infrastructure is essential for providing the urban poor with access to job opportunities (Brussel et al., 2019). Other than that, exposure to a larger social job network can help improve employment and salary outcomes for the urban poor (Godlonton, 2020). Despite these potential benefits, the urban poor's capacity to improve their labor market outcomes may be limited by several issues, such as a lack of access to public transportation, geographical segregation, and labor informality (Pérez et al., 2022).

ii. Affordable Housing with a Good Environment and Amenities

Malaysia faces endless issues related to affordable housing, where lower-income and middle-class people are unable to own a house due to the rapid increment in residential property prices (Daud et al., 2022). It is a well-established understanding that AH significantly impacts the QOL of the urban poor. The inability to afford adequate housing can lead to a range of negative outcomes, including a higher proportion of income spent on basic needs, leaving little to no disposable income for housing (Kumar & Shukla, 2022). The resulting housing shortages and inflexible housing stock further exacerbate these issues (Van Doorn et al., 2019). These challenges are closely linked to poorer physical and mental health outcomes, with deprivation acting as a mediating factor (Chung et al., 2019). Furthermore, the location of affordable housing communities significantly affects residents' access to essential services and amenities. Limited access can lead to lower satisfaction, reduced QOL, and weaker attachments to the community, as residents may feel isolated and disconnected from necessary resources and support networks (Zeng et al., 2019).

iii. Affordable Transportation and Smart Cities (AT)

Malaysia must enhance its public transport system and efficiency in urban cities as many urban poor cannot afford private transport. The new technology implemented in public transport will encourage more users, especially those with poor income (Milakis & van Wee, 2020). The government has to develop a new system that can support the implementation of smart cities and transportation, such as in Korea and Japan, where everyone, at every income level, can use public transport to travel. The new policy must focus on human mobility instead of vehicle mobility.

iv. Access to Healthy Food and Nutrition (AF)

In Malaysia, the urban poor face significant food insecurity, causing them to prioritize affordable, calorie-dense options over nutritious foods. This challenge is particularly evident among children who frequently go to school without a healthy breakfast. Besides, many parents in urban areas juggle multiple jobs to make ends meet, leaving them with limited time and resources to provide balanced meals for their families. To address this pressing issue, the government should collaborate with NGOs to implement programs that supply healthy, affordable food to poor urban communities, with a particular focus on PPR areas where food insecurity is most acute (Pinatih, 2020; Sousa et al., 2020; Ziso et al., 2022).

v. Access to Digital Education and Health (AD)

Education and health are the two most essential social services a family requires. Based on previous studies, both education and health have a close and interconnected relationship. For instance, increased education leads to positive health effects, and, in turn, improved health leads to improved levels of education. Therefore, the government must develop technology that can be used by the poor in urban education to reduce the burden of buying books. The government must also provide schools near the housing area as well as scholarships for them during primary and secondary school. If they are left in poverty without any help, it will affect not only students' attendance but also their performance. Research worldwide reveals that poverty severely limits access to quality education, and this is especially the case for students who come from low-income families. If no proper assistance is given, it is probable that these students will remain trapped in the same financial struggles as their parents and be unable to build a better future for themselves and for the generations that follow. In addition, the government has to ensure that health services are accessible to the urban poor by working with the private sector to implement effective ways to improve access to good health services (Mulyaningsih et al., 2021; Popovsky, 2020).

vi. Community Participation

Community participation plays a significant role in improving the QOL for urban poor populations. Research indicates that community involvement positively impacts health outcomes and organizational processes (Haldane

et al., 2019). However, studies also suggest that the poorest communities often face challenges in attracting community-driven development programs due to limited resources and inadequate organizational capacity (Walters, 2018). Employment and income remain crucial factors for urban poor well-being, yet various barriers limit their success in the labor market (Pérez et al., 2022). Social participation, especially for those managing chronic illnesses, has been shown to improve self-management skills and overall QOL (Ang et al., 2019). In addition, a strong sense of community identity enhances the positive association between social participation and life satisfaction, while feelings of loneliness can weaken this relationship (Deng et al., 2024). Perceptions of community environment, particularly safety, influence QOL, with local government satisfaction acting as a mediator (Lee & Park, 2022). Urban agriculture programs, when effectively implemented, can promote economic empowerment through effective implementation and social capital linkages (Nazuri et al., 2023). Last but not least, community-based water governance initiatives show potential for improving water access for the urban poor populations (Rana & Piracha, 2020).

Figure 1 shows how the enablers of key aspects of living in urban areas enable the enhancement of the quality of life for the urban poor populace. It affirms community participation as a core essential intermediary that links fundamental urban utilities with health.

The framework highlights key factors that impact the quality of life (QOL) for the urban poor, including employment and income, housing affordability, access to healthy food and nutrition, digital education and health services, and affordable transportation. These factors collectively address basic needs, mobility, and access to essential services. Central to the framework is community participation, which connects these domains by involving residents in decision-making and planning to ensure inclusive and sustainable solutions. By integrating these elements through active engagement, urban development initiatives can create affordable, equitable cities that significantly enhance the QOL for vulnerable populations.

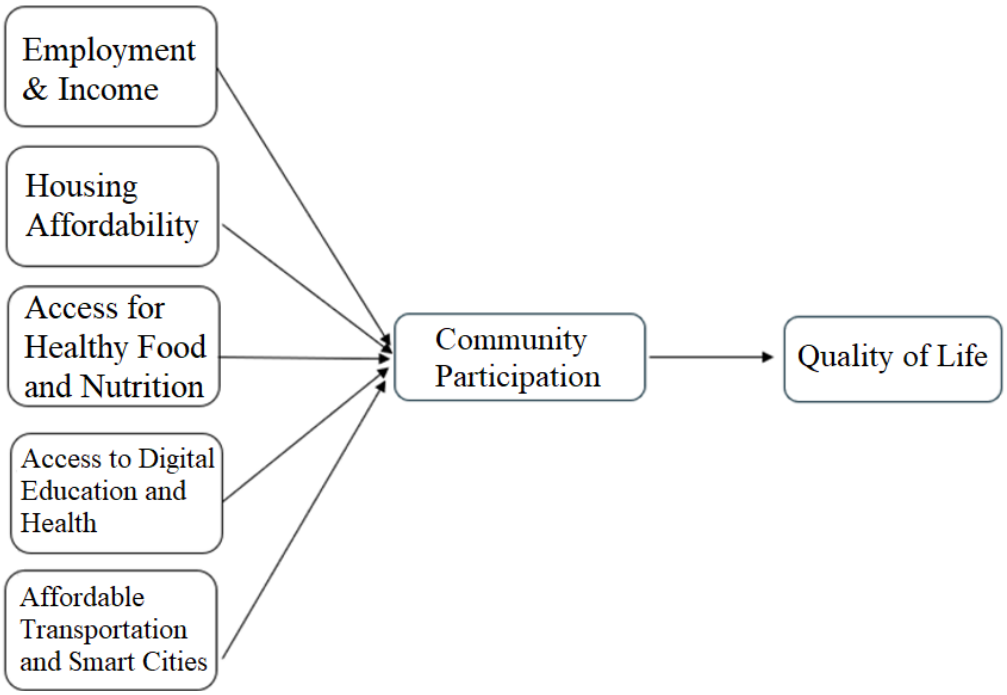

Figure 1. A model for affordable city in improving QOL for urban poor

3. Methodology

3.1 Sampling Technique

This study targeted respondents within the B40 income group, with survey questions specifically crafted according to the expert's recommendation to assess and understand their income levels, living conditions, satisfaction levels, and QOL. A purposive sampling technique was employed for the purpose of data collection. It is a non-probability method that requires the selection of participants based on predefined attributes; in this case, they are members of the B40 segment who live in low-cost housing. This method ensures that only individuals relevant to the study are included, maximizing the relevance of the data collected.

While random sampling techniques offer every member of the population an equal chance of selection, purposive sampling is used here to ensure the focus remains on the B40 group (Andrade, 2020). The minimum

sample size was estimated through G*Power, a statistical program that has been widely utilized by many to identify the smallest group needed to reach sufficient statistical strength in testing hypotheses. In this research, G*Power supported a power analysis to confirm that the sample size would be capable of uncovering statistically meaningful effects. With parameters set at a standard power level of 0.80, a significance threshold of 0.05, and an anticipated moderate impact size (Cohen, 2013), the final recommended sample size came to 92, a value that aligned well with established power guidelines for similar studies (Fox et al., 2007).

3.2 Data Collection and Analysis

This research was performed on seven governing bodies within the Greater Kuala Lumpur (GKL) region: Klang Municipal Council, Shah Alam City Council, Selayang Municipal Council, Kuala Lumpur City Hall, Sepang Municipal Council, Subang Jaya Municipal Council, and Petaling Jaya City Council. The GKL area is recognized as a metropolitan zone that includes Kuala Lumpur (KL), Malaysia's capital. Surveys were directly handed to targeted participants who reside in low-cost housing within GKL. The method gave the research team the flexibility to address any participant questions on the spot. The questionnaire was divided into two sections: the first gathers demographic data, and the second examines the study's specific constructs. A 10-point Likert scale was applied across all measurement items in the survey.

This research employed structural equation modeling (SEM-AMOS), a data analysis technique based on variance methods. Using AMOS version 21, various related approaches were applied to estimate both formative and reflective models accurately without incurring any inflation of the t-statistic. In this study, different parameters, such as algorithms, reliability, convergent validity, discriminant validity, and bootstrapping, were assessed to evaluate the predefined variables (Hair et al., 2017).

3.3 Questionnaire Design

The questionnaire has been carefully designed to measure QOL based on certain domains. The questionnaire consisted of a socio-demographic section and six main sections focusing on QOL, employment and income, housing affordability, access to healthy food and nutrition, access to digital education, and health and community participation. Information about socio-demographics was used to characterize the sample. Standardization and comparability are ensured by employing validated scales, such as the WHOQOL-BREF for QOL, in conjunction with closed-ended questions. Besides, the questionnaire is designed in dual language, Malay and English, and structured straightforwardly, culturally appropriately, and free of technical jargon. Pilot testing has been conducted with 30 respondents in Selangor to ensure clarity, applicability, and time efficiency.

3.4 Reliability and Validity Procedures

The data gathered has been verified through reliability testing for accuracy and consistency. Cronbach's Alpha is used to evaluate internal consistency with a threshold of ≥ 0.7, which indicates adequate dependability. Poorly performing items were found and removed using item-total correlation analysis. Then, Confirmatory Factor Analysis (CFA) is used to assess construct validity in order to make sure that the questionnaire measures the target dimensions appropriately.

3.5 Ethical Consideration

All procedures performed in this study involved human participants. Therefore, the procedures are in accordance with the ethical standards of the institution. The respondents are informed regarding the objectives and methods used for this study. Data gathered from the study are confidential and remain anonymous, and informed consent was obtained from all individual respondents involved in the study. The respondents are given an honorarium for their time in responding to the questionnaire.

4. Result and Analysis

4.1 Descriptive Analysis

The population was grouped according to gender and household characteristics. However, rather than selecting individuals at random, a purposive sampling technique was employed to identify the participants who met specific criteria relevant to the study's objectives, such as income levels, living conditions, or employment status. This targeted approach allows the carefully selected sample of 400 respondents to provide relevant and insightful data for the study rather than relying on random selection alone.

Based on the Table 1, most respondents were female (60.5%), with males making up 39.5%. The lack of male

respondents was because most male adults worked outside the study area on weekdays. The largest age group among the respondents was 31-40, making up 32.8% of the total sample. This was followed by the 25-30 age group (19.5%), the 41-50 age group (19.3%), and the 51-60 age group (10.8%). Only a small fraction of respondents were above 60 (5.3%). Most respondents were private sector workers (54%), followed by self-employed workers (25.5%). A smaller percentage worked in the public sector (10%) or another industry (10%). Most respondents earned between RM981 and RM2614 per month (48.3%). About 20.8% earned between RM2615 and RM4360 per month, while 12.5% earned between RM4361 and RM9619 monthly. A tiny percentage was below RM580 (9.8%) and between RM581 and RM980 per month (8.8%). Most respondents have an SPM education level (26.8%), followed closely by those with a degree (26%) and those with a diploma (21%). A smaller group has STPM, STAM, or matriculation qualifications (5%), while 4.5% hold postgraduate degrees. Only a small proportion have other forms of education (2.5%) or a primary school education level (2.5%).

Table 1. Descriptive analysis results

Demographic Profile	Description	Percentage (%)
Age	Below 25 years	12.5
	25-30	19.5
	31-40	32.8
	41-50	19.3
	51-60	10.8
	Above 60 years	5.3
Gender	Female	60.5
	Male	39.5
Race	Malay	78.5
	Chinese	6.3
	Indian	10.3
	Bumiputera	4.5
	Others	0.5
Religion	Islam	81
	Buddha	6.8
	Hindu	10.5
	Christian	1.5
	Others	0.3
Education Level	Certificate	7.5
	Diploma	21
	Degree	26
	Postgraduate	4.5
	Others	2.5
	SPM/SPMV	26.8
	STPM/STAM/Matriculation	5
	PMR/SRP	4.3
	Primary School	2.5
Married Status	Married	67.8
	Single	27.8
	Divorce	0.8
	Others	3.8
Monthly Income (RM)	RM981 – RM2614	48.3
	RM2615 – RM4360	20.8
	Below RM580	9.8
	RM581 to RM 980	8.8
	RM4361- RM9619	12.5
Occupation	Private Sector	54
	Self-employed	25.5
	Public Sector	10
	Others	10.5

4.2 Structural Equation Modeling

From Table 2, it is clear that each construct has an average variance extract (AVE) value ≥ 0.5 and construct reliability (CR) value ≥ 0.60, indicating that every item is valid and reliable.

Path analysis was conducted in this study to evaluate the assumptions made by the SEM AMOS software. The path analysis and goodness of fit index values, as shown in Table 3, include Chi-square = 186.74, probability = 0.098, Cmin/df = 0.70, RMSEA = 0.053, GFI = 0.977, AGFI = 0.912, CFI = 0.975, and TLI = 0.962. These goodness of fit values indicate that the model achieves a good fit. The goodness of fit index values provides insight

into the model's fit quality based on the fit indicators.

Table 2. AVE and CR evaluation results

Variable	AVE	CR	Result
Employment and Income	0.6	0.8	Valid and reliable
Housing Affordability	0.7	0.7	Valid and reliable
Access to healthy food and Nutrition	0.6	0.6	Valid and reliable
Access to digital education and health	0.8	0.6	Valid and reliable
Affordability of transportation and smart cities	0.7	0.6	Valid and reliable
Community participation	0.6	0.7	Valid and reliable
QOL	0.6	0.6	Valid and reliable

Table 3. Goodness of fit test

Measures of Fitness	Coefficient Index	Cutt Off	Model Evaluation
Chi-Square χ^2 CMIN	186.74		
Probability (P)	0.098	≥0.05	Good
GFI	0.977	≥0.90	Good
AGFI	0.912	≥0.90	Good
TLI	0.962	≥0.90	Good
CFI	0.97	≥0.90	Good
RMSEA	0.053	≤0.08	Good

The test results in Table 4 show that both employment and income have positive path coefficients toward housing participation in community development planning, with a path coefficient of 0.375, a T-value of 2.5201, and a P-value of 0.0131. This result means that the T-value of the path coefficient for the employment and income variable toward housing participation in community development planning is considered to be within the rejection region of *Ho*. This implies that both employment and income significantly impact housing participation in community development planning.

Table 4. Path analysis test results

Independent Variable	Dependent Variable	Standard Estimate	S. E	T-value	P-value	Result
Employment and Income (EI)	Housing participation in the development planning community (HP)	0.375	0.0812	2.5201	0.0131	Supported
Housing Affordability (AH)	Housing participation in the development planning community (HP)	0.559	0.1134	2.466	0.0152	Supported
Affordable transportation and smart cities (AT)	Housing participation in the development planning community (HP)	0.451	0.1402	2.742	0.0266	Supported
Access to healthy food and Nutrition (AF)	Housing participation in the development planning community (HP)	0.589	0.1632	2.8322	0.0031	Supported
Access to digital education and health (AD)	Housing participation in the development planning community (HP)	0.483	0.1251	2.616	0.0344	Supported
Housing participation in the development planning community (HP)	QOL	0.386	0.132	2.7331	0.0065	Supported

Similarly, the path coefficient of 0.559 for AH showed a positive relationship towards housing participation in community development planning, with a T-value of 2.466 and a P-value of 0.0152. It was observed that the rejection area *Ho* reflects the relationship between AH and housing participation in community development planning. This relationship significantly influences the dependent variable, AH, as it relates to housing participation in these communities. With a T-value of 2.742 and a P-value of 0.0266, the path coefficient value for customer satisfaction's impact on customer loyalty was 0.451. This indicates that affordable transportation and smart cities (AT) considerably impact housing participation in community development planning, as the T-test value of the path coefficient of the AT variable versus housing participation in the development planning community was within the rejection range of *Ho*. The path coefficient for the relationship between access to

healthy food and nutrition (AF) and housing participation in community development planning was 0.590, with a T-value of 2.832 and a P-value of 0.0031. This indicates that AF considerably influences housing participation in community development planning, as the T-value of the path coefficient for this relationship was within the rejection area of *Ho*.

The results for access to digital education and health (AD) suggest that the variable significantly impacts housing participation in the development planning community, as evidenced by a T-value of 2.616 and a P-value of 0.0344. The path analysis coefficient confirmed a significant relationship between these two variables. Furthermore, housing participation in the development planning community positively correlates with QOL, where a T-value of 2.733, a P-value of 0.0065, and a path coefficient of 0.386 were recorded. This indicates that the housing participation in the development planning community considerably impacts QOL since the T-value for the path coefficient of the housing participation variable versus QOL falls within the rejection region of the null hypothesis. The results of the analysis of mediation are tabulated in Table 5.

Table 5. The mediating effect analysis

Independent Variable	Mediation Variable	Dependent Variable	T-value	P-value	Result
Employment and Income (EI)	Housing participation in the development planning community (HP)	QOL	1.407	0.1317	Not supported
Housing Affordability (AH)	Housing participation in the development planning community (HP)	QOL	1.154	0.1631	Not supported
Affordable transportation and smart cities (AT)	Housing participation in the development planning community (HP)	QOL	2.061	0.001	Supported
Access to healthy food and Nutrition (AF)	Housing participation in the development planning community (HP)	QOL	5.31	0.004	Supported
Access to digital education and health (AD)	Housing participation in the development planning community (HP)	QOL	3.916	0.002	Supported

According to Table 5, it was observed that the Employment and Income (EI), Housing participation in the development planning community (HP), and QOL have a T-value of 1.407 and a P-value of 0.1317 in the mediation test result. This reflects that HP does not mediate the relationship between EI and QOL. Similarly, the mediation outcomes with a T-value of 1.154 and a P-value of 0.1631 signify that HP does not mediate the relationship between AH and QOL. The mediation is supported by a T-value of 2.061 and a P-value of 0.001 between AT and QOL by HP. The subsequent result for HP mediates the relationship between AF and QOL with a T-value of 5.310 and a P-value of 0.004. Additionally, HP has a mediation effect on AD and QOL, with a T-value of 3.916 and a P-value of 0.002.

5 Discussion

5.1 Employment and Income

The analysis showed that employment and income have a path coefficient of 0.375, a T-value of 2.5201, and a P-value of 0.0131. This indicates a strong positive impact of EI on HP. Essentially, as people's EI levels increase, their involvement in housing development within their community also increases. This result underscores the importance of economic stability for active community participation.

This finding aligns with recent studies that highlight the role of economic stability in fostering public participation. For instance, a study by Kapucu (2011) found that higher income levels and employment rates were significantly correlated with increased community involvement and participation in local development initiatives. Economic stability provides individuals with the resources and time necessary to engage in community planning activities.

5.2 Housing Affordability (AH)

AH is another crucial factor, with a path coefficient of 0.559, a T-value of 2.466, and a P-value of 0.0152. This shows that affordable housing significantly boosts participation in housing development planning. When housing is more affordable, people are more likely to engage in community planning and development activities.

This result aligned with Pfeiffer & Lucio (2020), who suggested that affordable housing options led to greater community stability and higher levels of civic engagement. Affordable housing reduces the financial burden on

residents, allowing them to allocate more time and resources towards participating in community development. Moreover, it fosters a sense of security and belonging, which are crucial for active participation in community affairs.

5.3 Affordable Transportation and Smart Cities (AT)

The impact of AT initiatives is also significant, with a path coefficient of 0.451, a T-value of 2.742, and a P-value of 0.0266. This means that having accessible and affordable transportation, along with the integration of smart city technologies, encourages greater participation in community housing development. Efficient transportation and smart infrastructure make it easier for residents to be involved in their community's planning processes.

Recent studies have highlighted the importance of transportation and infrastructure in community participation. For example, research by Ma et al. (2018) found that accessible and affordable transportation options significantly increased residents' ability to participate in community activities and planning. Additionally, smart city initiatives that leverage technology to improve urban living conditions have been shown to enhance civic engagement (Allam & Newman, 2018). These technologies can provide residents with better access to information and more efficient means of communication and participation.

5.4 Access to Healthy Food and Nutrition (AF)

AF substantially impacts housing participation, with a path coefficient of 0.590, a T value of 2.832, and a P value of 0.0031. This result indicates that residents are more likely to participate in housing development planning when communities have better access to nutritious food. This could be due to the overall improvement in residents' well-being and QOL when they have access to healthy food.

Recent studies support the relationship between access to healthy food and community participation. A study by Zhang et al. (2019) found that access to healthy food options was associated with higher levels of community engagement and participation in local activities. Improved nutrition contributes to better health outcomes, which, in turn, enable individuals to be more active and involved in their communities. Additionally, healthy food access is also linked to reduced stress and increased mental well-being, further facilitating community development participation.

5.5 Digital Education and Health (AD)

AD also plays a significant role, with a path coefficient of 0.386, a T-value of 2.733, and a P-value of 0.0065. AD services significantly encourage community involvement in housing planning. This highlights the importance of digital inclusion in fostering active community participation.

Research by Helsper & Reisdorf (2017) has shown that digital inclusion is crucial for enabling broader civic participation. AD resources provide individuals with the knowledge and tools needed to engage in community planning effectively. It also helps bridge the digital divide to ensure that all community members, regardless of socioeconomic status, can participate in development activities. Furthermore, digital health services improve overall well-being by allowing residents to focus more on community engagement rather than health-related issues.

5.6 Community Participation

In summarizing the mediation results, the study observed that HP does not mediate the connection between EI and QOL**,** nor between AH and QOL. This is reflected in the insignificant P-values and T-values, which suggest that community involvement in housing planning may not be sufficient in these areas to improve overall well-being. Conversely, significant mediation effects were found for AT and AF, with HP acting as a strong mediator. These results align with prior research suggesting that community participation significantly impacts the QOL by improving access to critical services like transportation and food (Haldane et al., 2019; Walters, 2018).

5.7 QOL

Lastly, HP significantly influences the overall QOL. A path coefficient of 0.386, a T-value of 2.733, and a P-value of 0.0065 indicate that increased engagement in housing initiatives positively enhances community members' QOL. This result aligns with Ang et al. (2019), whose research highlights how social capital and active involvement within the community positively impact QOL. Active participation in housing development improves the physical environment and fosters a sense of community, social cohesion, and mutual support among residents. These factors contribute to overall well-being and life satisfaction, highlighting the importance of encouraging community involvement in development planning.

In conclusion, this study reveals that several factors significantly influence HP. EI, AH, AT, AF, and AD all play vital roles. It can be postulated that when these areas are improved, communities can enhance their residents' involvement in housing development to create better-planned and more sustainable living environments.

6. Policy Implications

6.1 Enhancing Economic Stability

Economic stability is crucial for active community participation, particularly through improved employment and income levels. Policymakers should focus on creating and sustaining jobs by supporting local businesses, offering job training programs, and providing economic incentives for job creation. By ensuring residents have stable incomes, they will be more likely to invest time and resources into participating in community planning efforts.

6.2 Increasing Housing Affordability (AH)

Affordable housing is a critical component in encouraging community engagement. Policies aimed at expanding affordable housing options, such as subsidies for developers, rent control measures, and public-private partnerships in housing projects, can reduce financial burdens on residents. This, in turn, allows them to be more involved in community housing development planning.

6.3 Improving Transportation and Smart City Infrastructure

Accessible and affordable transportation, coupled with smart city initiatives, can significantly boost participation in community planning. Expanding public transportation networks, providing subsidies for low-income residents, and investing in smart city technologies that enhance urban living are essential steps. These measures will ensure that residents can easily participate in community activities and planning processes.

6.4 Ensuring Access to Healthy Food and Nutrition (AF)

AF is essential for overall well-being and active community involvement. Policymakers should promote community gardens, urban agriculture projects, and food assistance programs to improve food security. Nutrition education programs can further support healthy eating habits and increase awareness of local food resources, thereby fostering greater community participation.

6.5 Promoting Digital Inclusion and Access to Health Services

AD services are crucial for enabling broad civic participation. To bridge the digital divide, policymakers should invest in digital literacy programs, high-speed internet infrastructure, and telehealth services. Ensuring all residents have access to digital resources will empower them to engage more effectively in community planning and development activities.

6.6 Encouraging Community Participation

In the context of the study, it has been determined that community participation, specifically in areas like transportation and food security, plays a crucial role in improving the overall well-being of a community. Community identity significantly affects life satisfaction, especially in places where a strong sense of connection supports access to transportation and healthy food. Moreover, community involvement also boosts health, particularly through self-management programs. These findings suggest that even though community participation is valuable, its impact is most apparent when discussing aspects such as health, nutrition, and access to services rather than in areas like employment or affordable housing.

6.7 Enhancing QOL

Active participation in housing development contributes to an improved QOL. Hence, policymakers should focus on creating community centers, investing in public spaces, and implementing programs that encourage civic engagement. These initiatives, if done correctly, will help build a more cohesive and supportive community that can enhance the overall well-being and life satisfaction among residents. By addressing these policy areas, communities can encourage greater housing participation in development planning, leading to more inclusive, well-planned, and sustainable living environments.

7. Limitations and Future Research

One key limitation of this study is its sample size and demographic range. The sample may lack the breadth and diversity needed to fully represent the wider population. To enhance the applicability of future findings across various communities and regions, researchers should consider a larger and more inclusive sample. Additionally, future research could benefit from employing longitudinal studies, which would provide insights into changes and trends over time. Such an approach would allow for the observation of causal relationships and the impact of various factors across different stages of life or societal developments, thereby deepening our understanding of the phenomena studied.

On the other hand, there may be other influential variables that were not accounted for in this study. Factors such as cultural attitudes, local governance policies, and environmental conditions, which could also impact housing participation, were not incorporated in the current analysis. Therefore, future studies should consider different and more comprehensive variables to provide a better, more thorough understanding of the factors that influence housing participation. The study's findings may be influenced by the specific geographical context in which the data were collected. Differences in urbanization levels, economic conditions, and social structures across regions may limit the generalizability of the results. Replicating the study in different geographical contexts can help to validate and extend the findings.

8. Conclusion

This study reveals that multiple factors significantly encourage HP. Among the critical factors that have been identified is economic stability, as indicated by the levels of EI and the AH. Both factors directly influence residents' ability and willingness to engage in community activities. When people have stable jobs and incomes, as well as affordable housing, they are more likely to invest time and effort into participating in development initiatives that shape their living environments.

Additionally, access to essential services and infrastructure greatly enhances community participation. Reliable and affordable transportation, smart city technologies, AF, and AD services are all crucial to this issue. These factors collectively improve the overall QOL, making it easier for residents to get involved in community planning. When people can easily move around, access nutritious food, and utilize digital resources, they are better positioned to contribute to the development and well-being of their communities. These findings emphasize the need for holistic development strategies that address economic stability, AH, transportation, smart city infrastructure, healthy food access, digital inclusion, and community well-being. By implementing policies targeting these areas, urban planners and policymakers can create environments encouraging greater participation in community development planning. This, in turn, leads to more inclusive, well-planned, and sustainable communities that can cater to everyone’s needs and desired living standards.

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Data Availability

Not applicable.

Conflicts of Interest

The authors declare no conflict of interest.

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