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Influence of marketing factors on satisfaction of housing customers: A study of one thousand housing units in Minna, Niger state

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Abstract

This study investigates marketing factors that influence customers' (residents') satisfaction in mass housing delivery in Minna, Niger state. The independent variables are housing cost, housing quality and housing security. However, the dependent variable is residents' satisfaction. A survey research approach was adopted. The population of study comprises of 1,000 housing units in the two estates, namely, General Wushishi and Talba Housing estates in Minna. Each estate comprises of 500 housing units and the sample of 286 elements was drawn from the population using Taro Yamane sample size formula. Random sampling technique was used to draw the respondents (households in each bungalow) for questionnaire administration. The measurement instrument is 5-point Likert scale questionnaire. The multiple regression results show that housing cost, housing quality and housing security significantly influence residents' satisfaction in mass housing delivery in Minna, Niger state of Nigeria. The study concludes that marketing factors influence residents' satisfaction in mass housing delivery in Minna, Niger state. The study recommends that the Niger State government and Public-Private Partnership (PPP) firms should build homes equipped with easily maintainable amenities that meet the residents' living conditions and needs.

Keywords: Housing Estates, Mass Housing Delivery, Public Private Partnership, Residents Satisfaction

1. Introduction

Housing is basic human needs. Though, lack of affordable housing to purchase or hire is causing a global housing crisis. The world desires to build 96,000 new affordable homes every day to accommodate the estimated three billion people who will need houses by year 2030. Efforts to build more affordable homes are underway in countries like the United States, India, Scotland and Africa especially Nigeria (UN-HABITAT, 1993; World Economic Forum, 2024).

The involvement of governments (Local, State and Federal government) in Nigeria and other private organizations to the creation, growth and development of mass housing in the economy is immensely significant and multifaceted (Adeolu & Hassan, 2018). Government initiatives have played a crucial role in addressing the housing needs of a growing population, particularly in urban areas where demand is highest. Through various policies, programs, and the establishment of housing agencies, the government has sought to provide affordable and accessible housing to its citizens. These efforts have included the development of housing estates, provision of mortgages at subsidized rates and the implementation of policies aimed at reducing the cost of building materials and construction processes. By doing so, the government aims to alleviate the housing deficit and improve living standards across the nation.

In addition to government efforts, private organizations have also made substantial contributions to mass housing development. Real estate developers,

construction firms, and financial institutions have collaborated to bridge the housing gap by investing in large-scale housing projects. These private entities bring in necessary capital, innovation, and efficiency, often introducing modern construction techniques and materials that enhance the quality and durability of housing units. Public-Private Partnerships (PPPs) have emerged as a vital model in this sector, combining the power of both the public and private sectors to deliver housing solutions that are both affordable and sustainable. There is synergy between government initiatives and private sector participation housing projects. This synergy has been instrumental in driving the growth of the housing market, creating job opportunities, and contributing to overall economic development (Adedayo, 2012; Adeolu & Hassan, 2018).

Many people desire a house to call their own whether it is located in rural or urban area as housing has been an essential human need since time in memorial (Adeolu & Hassan, 2018). Consequently, real estate developers and the government at all levels have played crucial roles in the development of mass housing in the nation. This involvement stems from the fact that key indicators of housing satisfaction include quality, affordability, and safety. Additionally, having a comfortable living space significantly boosts the overall well-being and health of the population. Despite ongoing efforts by the Nigerian government to create programs and policies addressing this issue, the challenge of providing mass housing remains unresolved (Oyelowu & Dumson, 2018).

Throughout the years, the Federal Government of Nigeria has made substantial efforts to deliver mass housing, particularly for low- and middle-income families. Government participation in mass housing initiatives dates back to the pre-independence era (Aribigbola, 2000 in Chinwe, 2018). Following independence, the government introduced several initiatives, such as the establishment of the National Council on Housing in 1971, the Federal Mortgage Bank of Nigeria (FMBN), and the creation of housing corporations nationwide (UN-HABITAT, 1993 in Chinwe, 2018). Other significant measures included the "Housing for All by the Year 2000" campaign and the National Housing Policy of 1991, which was amended in 2006 (UN-HABITAT, 1993 in Chinwe, 2018). These efforts highlight the government's continuous commitment to addressing the housing shortage and improving living conditions for its citizens. Between 2007 and 2009, the Niger state administration observed the private sector's involvement in mass housing through Public-Private Partnerships (PPP). During this period, the number of housing estates developed across the state increased, positively impacting the local housing industry (Adedayo, 2012). These housing estates are mostly located outskirt of the state capital to facilitate the expansion of the city. It can be argued that the construction of some of these housing complexes was politically motivated. Notable examples include the General Wushishi Housing Estate in Minna, with its first phase constructed between 2007 and 2009, intended to contain 500 apartments. The Talba Housing Complex in Minna, initiated in 2008, was completed in 2013. These housing developments consist of a mix of two- and three-bedroom bungalows with semi-detached roofs. The estates share similar designs, differing only in the number of bedrooms and the paint colors used (Adedayo, 2012). This research aims to identify marketing factors that may influence residents' satisfaction with mass housing delivery through Public-Private Partnerships (PPP). The determinants factors of customers (residents) satisfaction are perceived price, perceived quality, financial capabilities, security, recreational facilities, environmental attributes, physical layout, location attractiveness and government policy

(Kaiman & Zani 2013; Minh, Hang, Quoc, Ngoc, Thuy, My, Kim, Thanh, 2023). This study focuses on marketing factors (housing cost, housing quality, and housing security) that may influence residents' satisfaction

Residential satisfaction measures how content people are with both their homes and the surrounding environment (Ogu, 2002; Mohammad & Adel Mahfoud, 2014). It is a crucial indicator used by planners, architects, developers, and policymakers in various ways (Mohammad & Adel Mahfoud, 2014). Key dimensions of residential satisfaction include housing cost, housing quality, and housing security or safety. Housing cost refers to the amount of money an individual spends on a home (Sayedi, Ringim & Ibrahim, 2016). Housing quality represents the value or standard of a house provided to residents in an area (Yogesh, Nakul & Bhavna, 2014). Housing security is having a home in a place people feel safe and secure with well-maintained amenities and law enforcement agencies (Hassan, Musa, Joy & Maruf, 2002).

Housing project has been a central topic at various international summits. Such submits include the 1992 Rio de Janeiro Summit on Environment and Development, the 1996 Habitat Summit in Istanbul, the 2000 United Nations Millennium Development Goals (MDGS) Summit in New York, the 2002 World Summit in Johannesburg, and the 2005 UN Sustainable Cities Documentation of Experience Program in Havana (Orekan & Eluyele, 2018). Like other developing countries, Nigeria faces rapid urban population growth due to inadequate infrastructure (like roads and rail networks) and poor rural economic conditions. According to Jiboye (2011) in Lubabbatu, Muhammad, and Maryam (2021), the urban population in Nigeria has improved significantly from 7% in the 1930s to 10% in 1950, 20% in 1970, 27% in 1980, and 35% in 1990. Today, over 40% of Nigerians live in metropolitan areas of different sizes. This demographic shift has led to serious housing issues in urban areas, resulting in overcrowded and substandard housing, with 60% of Nigerians classified as "houseless persons" (Lubabbatu, Muhammad, & Maryam, 2021).

Successive administrations in Niger state have undertaken various efforts to address the housing shortage through mass housing delivery. Mass housing projects have been constructed through the initiation of the Niger state government to curb the rapid population growth. Noteworthy among these efforts are the 500 M. I. Wushishi Housing estates and the Talba Housing estate in Minna, both of which were developed through partnerships with private investors (Jide, 2010). However, many residents have expressed dissatisfaction regarding the cost of homes relative to the quality of construction materials used and concerns about safety, particularly due to the distance of these estates from the city center.

Research concerning residents' satisfaction particularly mass housing delivery has yielded mixed results. Some studies (e.g., Foluke, Bukola, Akintade & King, 2021; Babatunde, Aigbavboa, Amusan, Ogundipe & Akinradewo, 2021; Hassan, Musa, Joy & Maruf, 2023) indicate a positive relationship among the factors influencing residents' satisfaction. Conversely, other studies (e.g., Sayedi *et al*., 2016; Nwankwo, 2021; Joy, 2021; Oluwole & Aina, 2020; Unah, 2022; Kingsley & Abiodun, 2020) suggest a negative relationship among these determinants. This research aims to address this discrepancy by examining the marketing factors influencing residents' satisfaction in housing delivery in Minna, Niger State, Nigeria. The independent variables in this study are housing cost, housing quality, and housing security, while the dependent variable is residents' satisfaction. The study adapts the model by Sayedi *et al.* (2016) which utilized housing

cost and housing quality as independent variables and customers' (residents') satisfaction as the dependent variable. This research contributes to the existing literature on mass housing units concerning the explanatory factors that may influence customers' (residents') satisfaction. Again, the study will serve as a reference point for the future potential academic researchers when reviewing literatures on the subject matter.

Therefore, the primary aim of this study is to assess marketing factors that influence customers' (residents') satisfaction in mass housing delivery in Minna, Niger State, Nigeria. The study intends to accomplish this objective by testing the following null hypotheses in the data analysis section.

Ho_1: Housing cost has no significant influence on residents' satisfaction in mass housing delivery in Minna, Niger state of Nigeria.

Ho_2: Housing quality has no significant influence on residents' satisfaction mass housing delivery in Minna, Niger state of Nigeria.

Ho_3: Housing security has no significant influence on residents' satisfaction in mass housing delivery in Minna, Niger state of Nigeria.

2. Literature Review

The section attempts to review conceptual and empirical literatures as well as the theory.

2.1 Concept of Mass Housing

The concept of "mass housing" originated in the construction industry, drawing inspiration from mass production techniques used in manufacturing (Ahadzie, 2007 in Chinedu, Musa, Chioma, Bamfo-Agyei & Saheed, 2020). Scholars define mass housing as the provision of a large number of residential units intended for a specific or projected group of people, and sometimes for the general public at large. According to Raj and Dipali (2021), mass housing often involves the construction of multi-story apartment complexes designed to meet the housing needs of middle-class families, aiming to address severe housing shortages in urban centers. Additionally, Ipalibo (2023) explains that "mass housing" or "public housing" refers to housing developments specifically designed, owned and managed by governments in partnership with private sector. The primary objective of social housing initiatives is to offer safe, comfortable, and affordable accommodation to low- and no-income individuals.

Mass housing projects vary widely in scale and scope, ranging from large-scale apartment blocks to smaller housing estates aimed at meeting diverse socioeconomic needs within a community. These initiatives often incorporate considerations for sustainability, urban planning, and community development. By providing affordable housing options, governments and their partners aim to alleviate housing crises, improve living conditions, and promote social equity. Despite differing definitions and approaches across regions and countries, the overarching goal remains consistent: to ensure that adequate housing is accessible to all segments of society, thereby fostering inclusive and sustainable urban development.

2.2 Concept of Residents/Housing Satisfaction

Numerous scholars attempt to give a definition of residential satisfaction. Onibokun (1974) in Mohammad and Adel Mahfoud (2014) describes residential satisfaction as contentment with both the home and the surrounding neighbourhood. Satsangi and Kearns (1992) in Mohammad and Adel Mahfoud (2014) view residential satisfaction as a psychological factor, highlighting the emotional and mental well-being associated with one's living environment. Meanwhile, Sayedi et al. (2016) define housing satisfaction as the degree of pleasure people experience when their housing aspirations and needs are met. These varying perspectives illustrate

that residential satisfaction is a complex, multifaceted concept influenced by a combination of physical, psychological, and social factors.

Adeyemo and Aderonmu (2020) and Fagbenle and Adeyemi (2020) opine that resident satisfaction is fulfilment experienced by individuals residing in a particular neighbourhood regarding the physical, social, and environmental conditions of their living environment. This concept serves as a critical gauge of residents' overall well-being and their satisfaction levels with their current living conditions. According to Ogunsote and Afolabi (2021), housing satisfaction encompasses an individual's overall contentment with their residence, encompassing various aspects of comfort and functionality. Ibem, Anozike, and Azuh (2011) as cited in Adewale (2021), further elaborate that residential satisfaction involves a comparison between a resident's current housing situation and their ideal neighborhood scenario, considering personal preferences, expectations, and the quality of the surrounding environment. This holistic view of residential satisfaction underscores its multidimensional nature, encompassing factors such as housing cost, quality, and security, as illustrated in Figure 1 below. These dimensions collectively contribute to shaping residents' perceptions and experiences within their residential settings, influencing their overall satisfaction and quality of life.

2.3 Conceptualization of Study Variables

For the purposes of this research, three factors influencing residents' satisfaction were considered, namely, housing cost, housing quality and housing security.

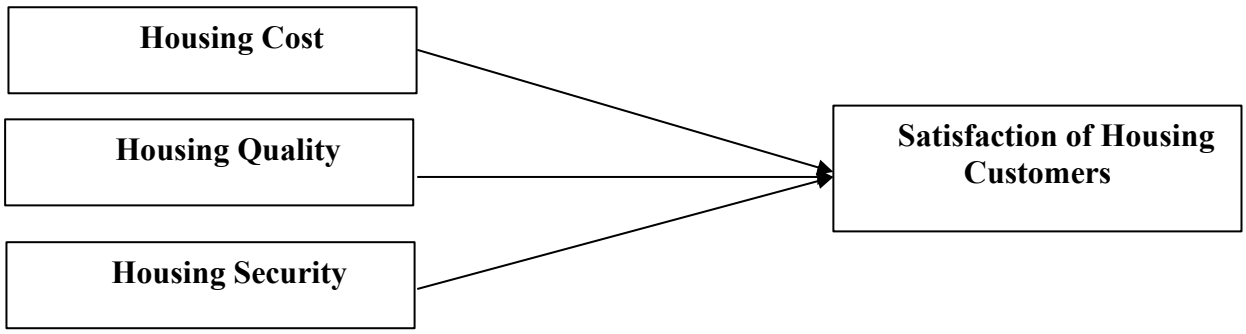

Figure 1: Conceptual Model
Source: Researchers' Survey, 2023

2.4 Empirical Review

Sayedi *et al.* (2016) investigated the influence of housing cost and quality on resident satisfaction within PPP mass housing delivery in Minna, Niger State. The research focused on a population of 500 homes located in the General M. I. Wushishi housing estate in Minna, the capital of Niger State. The research sampled 182 respondents that comprise households and estate residents to complete a questionnaire for data collection purposes. Multiple regression analysis revealed that housing cost had a positive but insignificant impact on residents' satisfaction, whereas housing quality had a negative and significant impact on satisfaction with PPP mass housing delivery. However, the study was limited in scope to the M. I. Wushishi

housing estate and specifically focused on the variables of cost and quality. Therefore, this study intends to address the gap by expanding the research scope to include both the M. I. Wushishi and Talba housing estates in Minna by broadening the variable scope.

In contrast, Oluwole and Aina (2020) assessed resident satisfaction at the Eric Moore Towers, a representative high-rise residential complex in Surulere, Lagos, Nigeria. The research employed a standardized questionnaire to survey the respondents. It identified critical factors influencing household satisfaction in tall buildings and recommended that stakeholders consider these findings when planning future residential high-rise developments. However, the study did not specify the method used to determine the sample size, highlighting a research gap. Therefore, this research work intends to fill this gap by employing the Taro Yamane Sample Size formula to ensure a statistically sound sample selection process.

Foluke *et al.* (2021) investigated residential satisfaction levels among residents of two housing estates developed through public-private partnerships in Lagos State, Nigeria. The study utilized descriptive statistics and categorical regression to analyze the data. The result reveals that residents generally expressed satisfaction with their living arrangements. The study highlighted that residents were most pleased with the quality of their housing units, followed by their neighborhood, while maintenance practices emerged as an area of least satisfaction. Socioeconomic status and demographic factors significantly influenced residents' satisfaction levels. The study recommended improving housing maintenance practices, enhancing infrastructure efficiency, and delivering better services to enhance residents' overall satisfaction in the examined PPP housing estates. However, the research was confined to PPP housing in Lagos State, Nigeria, necessitating this study to address this gap by focusing on PPP housing in Minna, Niger State, thus expanding the geographical scope.

Meanwhile, Babatunde *et al.* (2021) examined facility provisions in Public-Private Partnership (PPP) estates across three southwestern states of Nigeria, aiming to identify key providers of essential facilities in these housing developments. The study employed a quantitative research design and questionnaire was instrument for data collection. Data were collected from 90 residents living in selected estates with 88 responses obtained. Findings indicated that, besides constructing and financing the buildings, the private sector was responsible for waste management, electricity connection to the national grid, and the construction of internal road networks connecting estates to main access roads provided by the government. The study underscored the importance of understanding end-user facility needs for effective facility provision in future PPP housing projects. However, the study did not employ robust methods for data analysis and hypothesis testing, highlighting a research gap that this research aims to fill by employing multiple regression for hypothesis testing and rigorous data analysis.

Nwankwo (2021) evaluated the improvement of mass housing in Nigeria by assessing user satisfaction in Owerri. Using a stratified systematic random sampling approach, a total of 825 respondents were surveyed across six public housing estates in Owerri. The data was analyzed utilizing frequency tables and pie charts. The findings show that approximately 85% of respondents lived in substandard housing, with about 80% expressing dissatisfaction and a desire to change their residences. The primary reason for ongoing modifications to the dwellings was user dissatisfaction. The

study concluded with a recommendation for the government to refrain from direct housing construction and instead allocate land to individuals for self-construction or use user engagement strategies to enhance housing quality. However, the study did not employ robust methods for data analysis and hypothesis testing, a gap this study aims to fill by using multiple regression for hypothesis testing.

Joy (2021) explored the correlations between residential satisfaction, socioeconomic status, and demographic features among inhabitants. Surveying 178 respondents across eight public housing estates in Northern Nigeria, the data was analyzed using descriptive statistics, Pearson chi-square correlations, and logistic regression in SPSS version 24. The findings revealed that residential satisfaction was significantly associated with length of stay and marital status, while monthly income, duration of residence, and marital status were significant predictors of satisfaction. Higher satisfaction levels were reported by residents who had lived in the estates for over ten years, had monthly incomes above 100,000 NGN, accommodated households of 4-6 people, had more than three bedrooms, and owned their homes. Conversely, lower satisfaction was reported by male respondents, those married, over 30 years old, and those with large families (more than six people). The study concluded that understanding the support infrastructure and demographic profile of residents is crucial for planning future public housing projects. However, the research did not specify the sampling technique used, which this study intends to address by employing a simple random sampling technique.

Unah (2022) investigated residents' satisfaction with neighborhood infrastructural provisions in public residential estates in Kano, Nigeria. A field study involving 74 purposefully selected respondents was conducted, with 63 (85.13%) completing the questionnaires. The analysis used the neighborhood satisfaction index, mean satisfaction scores, and standard deviation. The results showed high satisfaction with religious facilities, the beauty of homes, proximity to schools and shops/markets, level of privacy, integration of homes, and quality of layout. However, residents rated the power supply, health facilities, security, refuse/sewage disposal, potable water, drainage systems, open space buildings, recreational facilities, and quality of open space for play and socialization as unsatisfactory. The study recommended promoting management involvement in facility upgrades, rehabilitation, and maintenance. However, similar to other studies, it did not use robust methods for data analysis and hypothesis testing which this research aims to rectify by utilizing multiple regression for hypothesis testing.

Kingsley and Abiodun (2020) conducted an analysis of residents' satisfaction levels with housing and the residential environment across six occupied housing estates in Benin City, Edo State, Nigeria. Data collection involved surveys, in-person interviews, and physical observations within the research region, specifically covering the Oluku, Ugbowo, Oregbeni, Ikpoba Hill, Iyekogba-Ebo, and Evbuoriaria estates in 2018. The study revealed variations in the Relative Satisfaction Index scores across environmental characteristics for both older and comparatively younger estates. It concluded that effective design and management of public housing estates are crucial, as residents are more satisfied when living in suitable homes and environments. However, the study did not specify the method used for estimating the sample size, a gap this study aims to address by employing the Taro Yamane (1976) sample size formula.

Haruna, Zubairu, Olagunju and Akande (2023) studied live ability considerations towards designing sustainable public housing in Niger State, Nigeria. The study

used mixed method approach design and the study involved cluster sampling for selecting housing estates and units and copies of 910 questionnaires. The results revealed 21 significant variables that collectively could achieve a 92.9% satisfaction rate among residents if incorporated into public housing design. Meanwhile, Hassan *et al.* (2023) investigated the predictors of residential satisfaction in public housing in Lokoja and explored the role of user input in housing provision in Nigeria. The study collected data from 215 residents across three housing estates in Lokoja. The findings indicated that marital status, monthly income, and number of bedrooms significantly predicted residential satisfaction in Lokoja's public housing. Other determinants included housing management neighborhood characteristics, and socioeconomic attributes, all of which demonstrated strong statistical significance in the analyses conducted. The study underscored the importance of involving users in public housing projects and provided valuable insights into enhancing residential satisfaction in developing cities in Nigeria. However, the focus was limited to mass housing in Lokoja, Kogi State, highlighting the need for further research in PPP housing in Minna, Niger State, which presents a distinct geographical scope.

2.5 Theoretical Framework

This study is grounded in consistency theory, which asserts that a company must meet or surpass its customers' expectations to maintain their satisfaction and comfort (Clinton & Wellington, 2013). Consistency theory encompasses several theoretical frameworks, including negative theory, assimilation-contrast theory, contrast theory, and assimilation theory.

Assimilation theory, akin to the theory of cognitive dissonance, suggests that customers evaluate their satisfaction by comparing their expectations with their perceptions of the product or service (Clinton & Wellington, 2013). This theory introduced the concept of post-usage evaluation in customer satisfaction literature. In contrast, contrast theory posits that people tend to emphasize differences between their own attitudes and those expressed by others with differing opinions. The assimilation-contrast theory integrates these perspectives, suggesting that customer satisfaction hinges on the alignment or discrepancy between actual and perceived performance of goods or services. Every product or service has zones or ranges of acceptance or rejection based on customer views. According to negativity theory, individuals with high expectations are more likely to react negatively to discrepancies between their expectations and actual performance, leading to dissatisfaction if expectations are not met (Clinton & Wellington, 2013). Therefore, residents of housing estates are more likely to express satisfaction when housing features such as quality, cost, and safety/security meet or surpass their expectations. This aligns with assimilation and cognitive dissonance theories, which emphasize the comparison of expectations with perceived outcomes in determining customer satisfaction.

3. Methodology

For this study, a quantitative research approach was employed, utilizing a survey methodology to gather and analyze data. This approach allows for the systematic collection of quantitative data through the use of descriptive and inferential statistics. The study population comprised all structures within the General Wushishi and Talba housing estates in Minna, totaling 1,000 housing units (500 each). Each estate consisted of 300 units of 2-bedroom standalone bungalows and 200 units of 3-bedroom semi-detached houses, making a total of 500 housing units across both estates. The estates are selected purposively due to their relative newness compared to other estates in Minna and

their full occupancy during the survey period.

To determine the sample size, Taro Yamane's formula from 1973 was applied, resulting in a sample size of 286 homes. A simple random sampling technique was used to select residences within the estates for inclusion in the study. Data collection was conducted using a structured questionnaire developed by the researcher. The questionnaire instrument is divided into two sections: Section A captured respondents' demographic information while Section B focused on the research variables measured on a 5-point Likert scale. The explanatory variables are housing cost, housing quality and housing security while the response variable is residents' satisfaction. These study variables were adapted from the research studies of Hassan, Musa, Joy & Maruf (2023), Molwus, Sunsuwa & Chong (2022), and Ibem, Ayo-Vaughan, Oluwunmi, & Alagbe (2018). The dependent variable, residential satisfaction, was also adapted from the framework provided by Hassan, Musa, Joy & Maruf (2023).

In this study, the content validity of the questionnaire instrument was conducted by an expert in the field of social sciences research. The reliability test was conducted through the pilot tests of the questionnaire after the assessment by the expert. Again, the reliability of the questionnaire instrument was measured through Cronbach's alpha reliability statistical tests (See Table 3.1).

Table 3.1 Reliability Test

Variable	Number of Items	Reliability coefficient
Housing Cost	6	0.865
Housing Quality	6	0.675
Housing Safety/Security	6	0.688
Residents Satisfaction	9	0.884

Source: SPSS, 23 Output

3.2 Methods of Data Collection and Analysis

The sum of 286 copies of questionnaire was distributed to the respondents who are households occupying each bungalow in the housing estates (General Wushishi and Talba housing estates in Minna) through two research assistants. Out of 286 copies of the questionnaire distributed, only 278 copies of the questionnaire were valid for data collection.

In order to tabulate and show quantitative data, frequency tables and percentages were used. The data from the questionnaire was coded and inputted into the computer for analysis using SPSS Version 23 (Statistical Package for Social Science). There were means, SDs, and correlations for every independent and dependent variable. The three independent variables were then utilized as inputs to a regression model to predict resident satisfaction. Additionally, the study utilized multiple regression model adapted from Sayedi *et al.* (2016). The scholars used housing cost and housing quality as independent variables and residents' satisfaction as dependent variable.

$$RS = \alpha + \beta 1HC + \beta 2HQ + \beta 3HS + ẹi$$

Where:

RS = Residents Satisfaction: It measures people's happiness with both their living accommodations and the surrounding environment (Ogu, 2002; Mohammad & Adel Mahfoud, 2014).

HC = Housing Cost: It is amount of money an individual spent on a house (Sayedi *et al.*, 2016).

HQ = Housing Quality: It is expressed as a value or quality of a house provided to the residents in an area (Yogesh *et al.*, 2014).

HS = Housing Security: It is having a home in a place people feel safe and secure with well-maintained amenities and law enforcement agencies (Hassan *et al.*, 2002).
α: Interceptor
ei: Error Term

4. Results and Discussions

A standardized questionnaire was employed to gather data from a total of 286 homes, selected randomly from the estates. Of these, 278 surveys were completed and returned promptly. The analysis was conducted using the data collected from these 278 completed questionnaires.

4.1 Normality Test

To assess the normality of the distribution, Skewness and Kurtosis were utilized. According to Hair, Black, Babin, and Anderson (2010), for a dataset to be considered normally distributed, the values of Kurtosis should range between -7 and +7, and Skewness should range between -2 and +2. Table 4.1 below shows that the statistics in this study align with these criteria.

Table 4.1 Normality Test using Kurtosis and Skewness

Variables	Skewness	Kurtosis	Decision
Housing Cost	-0.173	-0.846	Normal
Housing Quality	-0.625	-0.571	Normal
Housing Safety/Security	-0.742	0.616	Normal
Residents Satisfaction	-0.541	-0.643	Normal

Source: SPSS, 23 Output

4.2 Test of Hypotheses

This section of the study aims to rigorously test the hypotheses regarding the factors influencing residents' satisfaction in mass housing delivery in Minna, Niger State, Nigeria. By systematically analyzing data gathered from a sample of housing units across the General M. I. Wushishi and Talba housing estates, the research seeks to establish empirical relationships between housing cost, quality, security and residents' overall satisfaction. Utilizing robust statistical methods like multiple regression analysis, the study endeavors to uncover whether and to what extent these factors contribute to residents' satisfaction levels. Through this analytical approach, the research intends to provide insights that can inform policymakers, urban planners and housing developers on how to enhance the quality of mass housing projects in Minna, thereby improving living conditions and overall satisfaction among residents.

Table 4.2 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.992[a]	.985	.986	1.377

a. Predictors: (Constant), HS, HC, HQ
b. Dependent Variable: RS

The multiple correlation coefficient R of 0.992, as shown in the regression results from Table 4.2 above, signifies an exceptionally strong predictive relationship. This high value indicates that the combination of independent variables—housing cost, quality, and security jointly correlates closely with residents' satisfaction in mass housing delivery in Minna, Niger State. Moreover, the R Square value of 0.985 suggests that these independent variables collectively account for over 98% of the variability observed in residents' satisfaction levels. This means that 98.5% of the variation in residents' satisfaction can be explained by variations in housing cost, quality, and security. The adjusted R Square, slightly higher at 0.986, confirms the robustness of the model, indicating that this predictive

power holds even when adjusted for the number of predictors in the regression equation. These statistics underscore the strong association between the factors studied and residents' overall contentment with their housing environment in Minna.

Table 4.3 ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	33599.741	3	11199.914	5909.091	.000[b]
	Residual	521.227	275	1.895		
	Total	34120.968	278			

a. Dependent Variable: RS
b. Predictors: (Constant), HS, HC, HQ

The F value of 5909.091 and the corresponding P value of .000, as depicted in Table 3 above, unequivocally establish the statistical significance of the model. This signifies that the relationship between housing cost, housing quality, housing security and residents' satisfaction. This is not due to random chance but is indeed meaningful and robust. Essentially, this statistical measure indicates that changes in housing cost, housing quality and housing security have a significant influence on residents' satisfaction. Specifically, an improvement in housing cost, housing quality and housing security increase residents' satisfaction as indicate in Table 4.4. These findings are crucial for policymakers and developers aiming to enhance residential satisfaction through targeted improvements in housing attributes and affordability measures.

Table 4.4 Ordinary Least Square Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6.655	.510		13.044	.000	5.651	7.659
	HC	.358	.092	.120	3.907	.000	.177	.538
	HQ	1.254	.087	.494	14.396	.000	1.083	1.426
	HS	1.089	.089	.388	12.258	.000	.914	1.264

Dependent Variable: Resident Satisfaction (RS)

The results of the multiple linear regression analysis are presented in Table 5 and utilized to test the hypotheses. The regression equation, as shown below, illustrates the influence of housing cost, housing quality and housing security on residents' satisfaction: **Satisfaction of Residents (Y) 6.655 = 0.358X1 + 1.254X2 + 1.089X3.**

The regression analysis results reveal a constant β value of 6.655 with a standard error of 0.510, illustrating the relationship between factors influencing residents' satisfaction and their overall satisfaction. The positive coefficient β value for housing cost is 0.358, with a standard error of 0.092, a t-value of 3.907, and a significance level of 0.000. This indicates that housing cost significantly and positively influence on residents' satisfaction with mass housing delivery in Minna. Specifically, a 1% reduction in housing costs is projected to enhance residents' satisfaction with mass housing delivery by 0.358 (or 36%). This is possible in some urban areas (Like federal and state capitals) where standard of living of the majority residents is high.

Furthermore, the analysis shows a positive coefficient β value of 1.254 for housing quality, accompanied by a standard error of 0.087, a t-value of 14.396, and a significance level of 0.000. This signifies that housing quality has a significant and positive influence on residents' satisfaction

with mass housing delivery in Minna. Specifically, a 1% improvement in housing quality is predicted to lead to a substantial 1.254 (125.4%) increase in residents' satisfaction with the delivery of mass housing. This finding underscores the critical role that maintaining and improving housing quality plays in enhancing overall resident satisfaction in housing developments.

Besides, the regression analysis reveals a positive coefficient β value of 1.089 for housing security, along with a standard error of 0.089, a t-value of 12.258, and a significance level of 0.000. This indicates a significant and positive relationship between housing security/safety and residents' satisfaction with mass housing delivery in Minna. A 1% enhancement in housing security or safety is expected to lead to a notable 1.089 (108.9%) increase in residents' satisfaction regarding the delivery of mass housing. This underscores the critical importance of ensuring secure and safe living environments within housing estates, as it directly contributes to enhancing overall resident satisfaction and well-being.

Additionally, the 95% confidence intervals for the predictors fall within their respective lower and upper bounds, confirming the reliability of the estimated coefficients. Specifically, for housing costs, the lower bound is 0.177 and the upper bound is 0.538, with an estimated coefficient value of 0.358. This implies that housing cost has a substantial and beneficial impact on the satisfaction of residents in Minna with mass housing delivery. The fact that the housing cost coefficient lies within these bounds indicates that the results are statistically significant and robust, reinforcing the conclusion that reducing housing costs positively influence resident satisfaction. This alignment within the confidence interval further underscores the importance of affordability in enhancing the overall contentment of residents with their housing conditions.

Moreover, the confidence intervals for housing quality range from a lower bound of 1.083 to an upper bound of 1.426, with the calculated coefficient value being 1.254. This indicates that housing quality significantly and positively influence residents' satisfaction with mass housing delivery in Minna. The fact that the coefficient value of 1.254 falls within these lower and upper bounds demonstrates the robustness of the result, confirming that improvements in housing quality lead to a substantial increase in resident satisfaction. This positive impact underscores the importance of maintaining and enhancing housing standards to meet residents' expectations and needs, thereby improving their overall living conditions and satisfaction levels. The alignment of the coefficient value within the confidence intervals further validates the statistical significance of housing quality as a key determinant of resident satisfaction.

Lastly, the confidence intervals for housing safety and security range from a lower bound of 0.914 to an upper bound of 1.264, with a projected coefficient value of 1.089. This indicates that housing security significantly and positively influences residents' satisfaction with the implementation of mass housing in Minna. The coefficient value of 1.089 falling within these lower and upper bounds underscores the robustness of this finding, illustrating that improvements in housing security and safety measures lead to a notable increase in resident satisfaction. This underscores the critical role of ensuring safe and secure living environments for residents, which not only enhances their quality of life but also contributes to their overall satisfaction with the housing provided. The coherence of the coefficient value within the confidence intervals further reinforces the statistical significance of housing security as a

pivotal factor in shaping resident satisfaction in mass housing delivery.

4.3 Discussion of Findings

The results of the three hypotheses tested affirm that housing cost, housing quality and housing security play pivotal roles in shaping residents' satisfaction in mass housing delivery in Minna, Niger State of Nigeria. These findings resonate with previous research by Sayedi *et al.* (2016), Babatunde, Aigbavboa, Amusan, Ogundipe, and Akinradewo (2021), Foluke, Bukola, Akintade, and King (2021), and Hassan, Musa, Joy, and Maruf (2023). These studies consistently highlight the significant impact of these variables on residents' overall satisfaction with their housing environments. The results underscore that affordable housing costs, high-quality housing infrastructure, and robust security measures are critical factors in enhancing residents' contentment and well-being in mass housing projects. By aligning with earlier research findings, this study reinforces the importance of addressing these key dimensions in housing development strategies to ensure optimal satisfaction among residents, thereby contributing to sustainable and thriving communities in Minna and similar urban contexts.

5. Conclusions and Recommendations

Residents' satisfaction with mass and affordable housing delivery in Nigeria remains a pressing issue demanding urgent attention. This study focused on elucidating the marketing factors that influence residents' satisfaction in mass housing delivery specifically in Minna, Niger State of Nigeria. The findings from the hypotheses tested underscored the critical roles of housing cost, housing quality, and housing security in shaping residents' satisfaction levels in these housing schemes. The results consistently demonstrated that affordable housing costs improved housing infrastructure quality and enhanced security measures significantly contribute to residents' overall satisfaction with their living conditions in Minna. The study concludes that marketing factors influence residents' satisfaction in mass housing delivery in Minna, Niger state. The study recommends that the Niger State government and Public-Private Partnership (PPP) firms should build homes equipped with easily maintainable amenities that meet the residents' living conditions and needs.

Limitations and Further Studies

This study focuses on housing cost, housing quality and housing security as independent variables influencing residents' satisfaction in mass housing delivery in Minna, Niger state. Further studies should consider financial capabilities, infrastructure & recreational facilities, environmental attributes, physical layout, location attractiveness and government policy as explanatory variables influencing residents' satisfaction in mass housing delivery.

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