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Modelling Neighbourhood Satisfaction Of Residents In High- And Medium-Density Neighbourhoods Of Lagos City, Nigeria

Stephen Enyinnaya Eluwa* **and Ho Chin Siong**

Faculty of Built Environment, Universiti Teknologi, Johor Bahru ,Malaysia

ABSTRACT

Using a structural equation model (SEM) and multiple linear regression (MLR), the factors influencing residents' satisfaction in high and medium density neighbourhoods of Lagos metropolitan city, Nigeria were examined. This study takes a different approach by categorizing the factors into four domains (social environment, transportation, environmental quality, facilities). A total of 239 respondents from low-income high density and 220 from medium-income medium density neighbourhoods of the city were randomly selected. The main objective of the study was to identify the predictors of neighbourhood satisfaction among the residents of the two neighbourhoods. The results showed that a significant relationship exists between the four domains and neighbourhood satisfaction of the residents. However, the model results showed some variations in the predicting power of each of the domain. The social environment (X^2 = 7.029, p = 0.218, GFI = 0.994, AGFI = 0.982, RMSEA = 0.030, df = 5, N = 450) had more influence on residents neighbourhood satisfaction compared to other domains. Other variables found to have significantly influenced neighbourhood satisfaction in the other domains were drainage (β = 0.29), waste management (β = 0.24), street lighting, (β = 0.23) and noise pollution (β = 0.22).The finding of the study substantiates the importance of social and physical environment factors on the well-being of urban residents in developing countries.

Keywords: neighbourhood satisfaction, structural equation model, Lagos, physical environment, social environment

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E-mail addresses:
ellis772000@yahoo.com (Stephen Enyinnaya Eluwa),
csho59@yahoo.com (Ho Chin Siong)
* Corresponding author

INTRODUCTION

Residents' satisfaction with their neighbourhood is thought to be governed by a wide range of factors including both social

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and physical attributes of the environment (Oktay *et al*. 2009; Corrado *et al*. 2011). Research into both physical and social characteristics of neighbourhoods shows contradictory effects on neighbourhood satisfaction (Hur & Morrow-Jones, 2008). Studies have found that physical characteristics have strong influence on neighbourhood satisfaction compared to social or economic characteristics (Kaplan, 1985; Langdon, 1988; Sirgy and Cornwell, 2002). Hur and Morrow-Jones (2008) noted that the importance of physical characteristics of a neighbourhood is not always supported by research and that the value attached to the physical characteristics of a neighbourhood depends on the respondent's background. Though planners place more emphasis on the physical characteristics, residents consider social factors more important in evaluating a neighbourhood (Lansing & Marans, 1969). Individuals who have friends and family close by are likely to be happier (Parkes *et al*., 2002), while low education is sometimes associated with greater dissatisfaction (Miller *et al*., 1980; Spain, 1988; Lu, 1999). Satisfaction is a feeling that is somewhat difficult to measure, which is one reason why we often see contradictory responses from the subjects and it arises from a mixed set of evaluations (Hur & Morrow-Jones, 2008). According to Mesch and Manor (1998), satisfaction is the evaluation of features of the physical and social environment. While this definition may sound very simple, measuring or evaluating residents' perceived satisfaction with their physical and social environment is somewhat difficult because of the number of variables involved and the different scales used by researchers.

The objective of this study was to gain more insight into the factors that influenced residents' satisfaction with their neighbourhood in Lagos metropolitan city, Nigeria. Hence, we hypothesised that positive evaluations of environmental characteristics (drainage, noise pollution, waste management), transportation (commuting time to work/school, public transport, time spent in traffic), facilities (potable water, road, open space, street light, shopping malls/markets) and social environment (safety, friendliness of neighbours, recreational centre, good neighbourhood for raising children) could be associated with neighbourhood satisfaction. The rest of this paper is structured as follows: the second section describes the study area while the methodology is presented in the third section. The results of the study are presented in the fourth section and the fifth section forms the conclusion.

Study Area

Lagos metropolitan city is located on a narrow coastal plain on Bight of Benin in the South Western part of Nigeria. Its proximity to the Atlantic Ocean has made it a business hub in the West African sub-region. With a population estimated of over 15 million, it is regarded as a mega city (UN-HABITAT, 2012). The metropolitan area of Lagos accounts for more than one third (36.8%) of Nigeria's urban residents. With a population growth rate of between 6 and 8% yearly,

Lagos' population is believed to be growing 10 times faster than that of New York or Los Angeles, and today Lagos is more populous than 32 African countries (UN-HABITAT, 2012) . Olayiwola *et al*. (2006) noted that the influence Lagos exerts in Nigeria is due to its historical and cultural background and partly due to its former role as the seat of the national government. Owing to its strong influence on the Nigerian economy, the population composition of Lagos is heterogeneous, with all ethnic nationalities in the country being represented. Most multinational corporations and organisations have their headquarters in Lagos. The metropolitan nature of Lagos with people from various walks of life makes the study on neighbourhood satisfaction somewhat difficult. In the present study, two neighbourhoods, Mushin in the high-density and Festac in the medium-density residential area of the city, were examined. The decision to choose Mushin among the low-income residential areas of the city was based on the fact that housing deterioration, facilities overload, slum creation, squatter housing, overcrowding and socio-spatial disorderliness among others are common features of the neighbourhood (Aluko, 2012). The second neighbourhood, Festac, located in the medium-density residential area, was developed by the Federal Housing Authority in the 70s when Nigeria was preparing to host the second Black and African Festival of Arts and Culture (Festac). Facilities such as shopping complexes, recreational centres, hotels, clinics, schools, banks and so on are located in this neighbourhood. Festac was planned from the beginning to meet the residential needs of the low, medium and high-income members of society. To fulfil this aspiration, the property was balloted for and allotted to three classes of federal government staff and repayment was done through mortgage arrangement. However, events over the years have changed the fabric of the neighbourhood, and today, majority of residents in Festac are from

Fig.1: Map of Lagos. Source: Lagos State Ministry of Information.

the medium-income group as most of the residents from the low-income group that won the ballot have sold their property. On the other hand, majority of the high-income group living in the neighbourhood before had relocated to other emerging highbrow neighbourhoods in the metropolis such as Lekki Peninsular and Victoria Garden City (VGC).

METHODOLOGY

The data for this study were obtained from a residential area survey in the two neighbourhoods. In Mushin neighbourhood, 239 adults were randomly sampled while in Festac, 220 were sampled, giving a total of 459 respondents. Sixteen single items adopted from Lee (2010) and Jeffres and Dobos (1995) were used. The items were safety and crime, public transport, roads, street lighting, waste disposal/management, public schools, drainage system, shopping malls/markets, open space, recreational centre, friends and neighbours, commuting time to work, traffic. In line with Cummins and Gullone's (2000) recommendation, respondents were asked to rate their level of satisfaction on a 10-point scale ranging from 0 (completely dissatisfied) to 10 (completely satisfied) for the 16 items used for measuring neighbourhood satisfaction in this study. Adopting the 10-point scale is believed to be able to remove the bias (negative skewedness) associated with subjective quality of life data as people would not be restricted to a portion of the conventional scale. Such expansion appears not to systematically influence scale reliability, and is therefore psychometrically feasible, but is made difficult by the convention of naming all response categories. It has been argued that this naming is quite unnecessary and actually detracts from the interval nature of the scale. So the solution proposed is to adopt 10-point, end-defined scales. This offers a form of rating (1 to 10) which lies within common experience and can produce increased sensitivity in the measurement instrument (Cummins & Gullone 2000). In this study, ratings for the 16 items were summed and averaged for an overall neighbourhood satisfaction of residents. Average scores for these 16 items ranged from 2.5 for safety/crime and 6.2 for good neighbourhood relationship with friends and neighbours. However, Westaway (2009) used some of these items in a study in Johannesburg, South Africa and found that average score for satisfaction with transport was 6.3 while in the present study it ranged between 3.0 in Mushin Neighbourhood to 3.9 for Festac.

Model Development

Based on the data collected, a structural equation model was developed to represent the expected underlying causal relationships likely to explain neighbourhood satisfaction among residents of the two neighbourhoods. This is represented in pictorial form as a path diagram. The model developed is based on the premise that neighbourhood satisfaction can be explained by several manifest variables. In this study, the variables were grouped in four domains (environmental quality, facilities, transportation and social

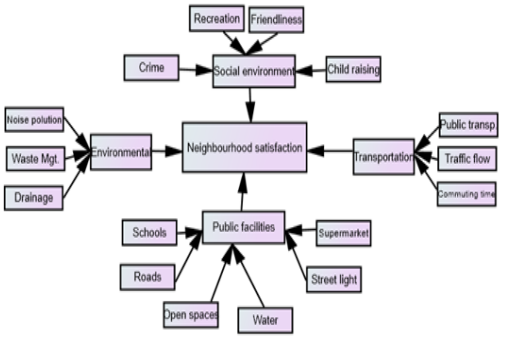

Fig. 2: Path diagram showing the various variables that influence neighbourhood satisfaction.

environment). Path diagrams showing how the various variables in the four domains influenced neighbourhood satisfaction in terms of their explanatory power and statistical significance and what their relative effect on neighbourhood satisfaction could be are presented. Before going further in to more detailed analysis, it is necessary to explain what the different components in a path diagram means (Fig. 2).

The rectangles represent measured variables also known as manifest or indicator variables while the circles or ellipses represent unmeasured or latent variables. Single-headed arrows show direct causation in the direction of the arrow between two variables (Kelly, 2011). The explanatory power of the causal relationship is provided by the regression weight and is usually drawn on the line between two variables. Endogenous variables are variables that are defined by other variables and identified as having at least one single-head arrow feeding in to them (e.g. neighbourhood satisfaction). Exogenous variables are used to define other variables in the model and therefore have only arrows that lead to other variables (e.g. noise pollution, street light, etc.)

Multiple Linear Regression

Multiple linear regression was chosen as it allowed us to calculate the additional variance contributed by each variable in the model. Before any structural equation model was developed in this study, multiple regression models were created to understand how much of the variance in neighbourhood satisfaction of residents could be explained using standard methods. In this study, the variables explaining neighbourhood satisfaction were grouped into four domains; therefore, four models were created.

RESULTS

Socio-demographic Profile of Respondents

The data came from 459 respondents: 239 from Mushin neighbourhood and 220 from Festac. The ages of 31% and 25.6% of respondents from Mushin and Festac, respectively, ranged from 21-30 while 31% and 25.6% ranged from 31-40; 11.7% and 20% ranged from 51-60; 14% and 10.5% were above 60 years; and 1.7% and 0.5% ranged from 15-20. As could be seen from the age distributional of the respondents, more than half of the respondents were in the age bracket of 21-40. Lagos being a metropolitan city in Nigeria that has a lot of employment opportunities attracts many young men and women from neighbouring towns and cities within the country.

With respect to occupation, more than 30% of the respondents from each of the neighbourhoods were engaged in one form of business or the other (Mushin 35.1%, Festac 30.5 %) followed by those engaged in professional work (Mushin 17.6%, Festac 25.9%), artisans (Mushin 16.7%, Festac 8.6%), those engaged in some other occupations (Mushin 17.2%, Festac 15%), the rest were still schooling (Mushin 5 %, Festac 8.2%). The higher percentage of respondents that engaged in business is not surprising because the location of seaport and international airport, coupled with the agglomeration of industries. All these have made the city a business hub in Nigeria. In Nigeria, evaluating people's monthly income in a survey is somewhat difficult due to the fact that many have multiple sources of income for which they do not have records. In this study, respondents were asked to tick income group category as provided in the questionnaire.

Results (Table 1) showed that about 43.5% of respondents from Mushin earned between 31,000 and 80,000 Naira ($206-533) monthly as compared to 7.8% from Festac neighbourhood, while 30.5% of respondents from Festac had a monthly income ranging from 81,000-150,000 Naira ($540-1000) as compared to 20.5% from Mushin. In a similar vein, 44.5% from Fesatc earned between 151,000 and 200,000 Naira ($1006-1333) compared to 15.5% from Mushin. Meanwhile, 14.2% of respondents from Mushin earned between 15,000 and 30,000 ($100-200) as compared to 4.5% from Fesatc. 6.3% from Mushin earned below 15,000 Naira compared to 2.3% from Festac. Additionally, 10.5% of respondents from Festac earned above 200,000 ($1333) while none of the respondents from Mushin earned more than that.

The breakdown of the income pattern of respondents in the two neighbourhoods revealed two things: first, that more than 40% of respondents from the medium-density residential neighbourhood (Festac) earned between 150,000 and 200,000 Naira ($1000-1500) monthly while 10.5 % earned above 200,000 ($1333). Second, more than 50% in the high-density residential area neighbourhood (Mushin) had a monthly income ranging from 15,000-80,000 Naira ($100-500). As earlier stated, the majority of residents in Festac neighbourhood are medium-income earners. In present-day Nigeria, someone whose salary is in the range of 150,000-200,000 Naira or more is categorised as being in the medium-income group.

On the educational qualification of respondents, more than 40% of the respondents (Mushin, 43.9%, Festac 47.7%) had a first-degree certificate (BSc, HND, NCE); 30.2% from Mushin had a school certificate against 30.9% from Festac; 13.2% from Festac were masters' degree holders against 10% from Mushin; 8.5 % of respondents in Mushin had a primary-school leaving certificate against 0.5 % from Festac, and the rest (Mushin 5.4%, Festac, 6.8%) had other qualifications.

Table 1:
Demographic Profile of Respondents

Demographic characteristics	Low-income, high-density neighbourhood (Mushin) N = 239	Medium-income, medium-density neighbourhood (Festac) N = 220	Demographic characteristics	Low-income, high-density neighbourhood (Mushin) N = 239	Medium-income, medium-density neighbourhood (Festac)
Age			**Education**		
15-20	1.7%	0.5 %	Primary	8.4 %	0.5 %
21-30	30.5%	28.6%	Secondary	32.2%	30.9%
31-40	31 %	25.6%	First degree	43.9%	47.7%
41-50	10.5 %	15 %	Masters	10%	13.2%
51-60	11.7 %	20 %	PhD	0 %	0.9%
Above 60	14.6 %	10.5 %	Other qualifications	5.4%	6.8%
Gender			**Income**		
Male	46%	53%	<15,000	6.3%	2.3%
Female	54%	47%	15-30,000	14.2%	4.5%
Occupation			31-50,000	21.3%	2.3%
Civil servant	8.4%	11.8%	51-80,000	22.2%	5.5%
Artisan	16.7%	8.6 %	81-150,000	20.5%	30.5%
Business	35.1%	30.5%	151-200,000	15.5%	44.5%
Professional	17.6 %	25.9%	>200,000	0	10.5%
Student	5 %	8.2%			
Others	17.2%	15 %			

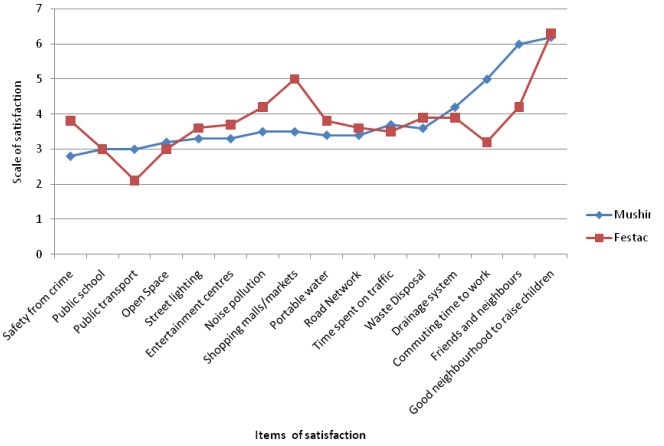

Fig. 3: Factors influencing neighbourhood satisfaction in the high- (Mushin) and medium-density (Festac) neighbourhoods.

Neighbourhood Satisfaction Among Residents of the High-density Residential Neighbourhood (Mushin) and Medium-density Residential Neighbourhood (Festac)

In our analysis of factors that influenced residential satisfaction among residents in the high- and medium-density residential neighbourhoods, we examined the rating of 16 items used for measuring neighbourhood satisfaction in this study (Fig. 3). The results revealed that the most important factor influencing neighbourhood satisfaction in the two neighbourhoods was the social environmental factors (friendliness of neighbours and conducive environment for raising children). The average score for each of the factors ranged from 6.0 and above. Looking at the two neighbourhoods, it could be seen that respondents from Festac neighbourhood tended to record higher ratings in all the items compared to those from Mushin except for public transport. Other factors that have an average rating above 4 for Festac neighbourhood include: friendliness of neighbours (4.2), noise pollution (4.2) and availability of shopping malls/markets (5.0) in comparison to Mushin neighbourhood, noise pollution (3.5) and availability of shopping malls/markets (3.5).

In terms of crime and safety of residents, Festac (3.8) performed better than Mushin (2.8). Mushin is one of the neighbourhoods in the state that has a high number of street urchins; hence, crime rate is higher here. Most of them are teenagers and young adults who are either not gainfully employed or have dropped out of school without any future ambition. It is noted as one of the neighbourhoods in Lagos metropolis that records high rates of youth restiveness and violent crimes. One striking feature about how residents perceived neighbourhood satisfaction is that despite the notorious nature of this neighbourhood in relation to crime, most residents still rated the social environment as being all right for raising their children. What this suggests is that residents see crime in the neighbourhood as part and parcel of the social life and thus cannot deprive them of social ties with friends and neighbours. Parkes *et al*. (2002) noted that individuals who had friends and family close by were likely to be happier. This seems to be proved by this neighbourhood too, as most people residing in it have either settled here for decades and have strong family ties. Hence, they were satisfied with the social relations that exist between them and their neighbours. In most African societies, close family ties with relatives and kinsmen is a major factor in neighbourhood choice for raising up children even when some of the necessary infrastructure needed is in short supply.

Although the government and other relevant authorities saddled with the duty of safety and crime control in the city have been making a serious effort to reduce the crime rate, especially in some notorious spots in the city such as Mushin, attention should equally be paid to provision of infrastructure and youth empowerment to reduce unemployment. Studies have shown that a strong association exists between poverty, lack of infrastructures

and high volume of crimes, as well as other anti-social behaviour (Sampson & Wilson, 1995). In their study, McVie and Norris (2006) reported that the characteristics of neighbourhoods in which young people live play a role in influencing aspects of delinquent and drug-using behaviour, although their impact was not strong when compared to individual characteristics such as personality and gender.

The low average score obtained on infrastructural facilities used in measuring the level of satisfaction of respondents reveals the current situation in both neighbourhoods. Respondents were not satisfied with the provision of some basic infrastructure such as drainage network, road, street light, public transportation and waste disposal. This finding corroborates that of Kahrik *et al*. (2012), who in their study of Tallinn, an urban region of Estonia, reported that provision of public infrastructure had a significant effect on neighbourhood satisfaction. They noted that respondents expressed lowest levels of satisfaction on proximity and accessibility of public transport infrastructure, schools and leisure facilities including children's playgrounds. Another study by the Scottish Household Survey (2006) reported that safety was a major aspect of neighbourhood that all the respondents liked.

In their study on home owners' satisfaction in Franklin County, Ohio, United States, Hur and Morrow-Jones (2008) reported that social problems such as social activity, crime, racial composition and proximity to problem areas had a dominant influence on overall neighbourhood satisfaction of residents. Similarly, Oktay *et al*. (2009) reported in their study that a higher sense of community feeling led to a higher sense of belonging. In other words, the level of social interaction people enjoyed in a neighbourhood would to a certain level influence their sense of belonging and satisfaction. Although the present administration of the state since its inception has tried to keep the city clean and has upgraded some facilities, the rating obtained from some of the factors used in assessing satisfaction in this study showed that a lot still needs to be done in order to meet the yearnings and desires of residents.

Environmental Quality

The influence of some environmental characteristics (noise pollution, waste management, drainage system) on neighbourhood satisfaction was examined. Many neighbourhood satisfaction and quality of life models rely on the environmental quality to predict neighbourhood satisfaction. It therefore followed that environmental quality variables used in this study should serve as good indicators and have statistically predictive power for estimating neighbourhood satisfaction. In order to test this hypothesis, a MLR (multiple linear regression) model was employed.

Equation 1.1

$$y = A + B1x + B2x + B3x + \varepsilon$$

y = neighbourhood satisfaction (dependent variable)
A= constant
ε = error term
B1, B2...B3 = drainage system, noise pollution, refuse disposal (independent variables)

Equation (1.1) measures the predictive power of environmental quality on neighbourhood satisfaction. The results of the analysis are shown in Table 2.

The null hypothesis (H0) of the study was that environmental quality (EQ) was not strongly related to neighbourhood satisfaction of residents in the two neighbourhoods. The result shows that a significant relationship exists between the environmental quality and residents' satisfaction with the neighbourhood ($F = 38.63$, $p<0.05$). Thus, the null hypothesis was rejected while the alternative was accepted. As shown in Table 1 the model can accounted for 0.203 or 20 % variance in neighbourhood satisfaction. Looking at the three variables in the model (Fig. 4), drainage system ($\beta = 0.292$, $P <0.05$) contributed most in explaining neigbourhood satisfaction. It accounted for 29% variance when other variables were held constant. This result is not surprising because more than half of the city is located in a coastal environment, thus most residents have to contend with flooding. The issue of flooding in the city could be attributed to poor drainage system. In their study, Adeloye and Rustum (2010) identified blocked drainage with solid waste and other sediments as one of the major causes of flooding in the city. However, Odunuga (2008) noted that extensive land use change due to rapid urbanisation rate in the city has led to high percentage of imperviousness to this factor. The author maintained that such high rate of imperviousness produced little or no loss during rainfall, implying that almost all the rainfall was instantaneously converted to runoff. With a poor drainage network in most part of the city to handle such a large volume of runoff, flooding has become a major problem residents face whenever it rains.

Table 2:
Multiple Regression Diagnostics

Model	Unstandardised Coefficients		Standardised Coefficients		
	β	Std. Error	β	t	Sig.
(Constant)	2.774	.108		25.677	.000
Drainage system	.120	.017	.292	6.945	.000
Noise pollution	.074	.014	.223	5.316	.000
Household refuse removal	.086	.015	.237	5.661	.000

R 0.451, $R^2 = 0.203$, Std.Error of estimate = 0. 65063, F = 38.63
* Statistically significant at p=0.05

The next variable in the model, waste management system ($\beta = 0.237$, $p< 0.05$) accounted for 24 % of variance in neighbourhood satisfaction when other variables were held constant, meaning that a unit increase in quality of waste management within the city could lead to about 24% variation in level of satisfaction among residents. Waste management is one of the major problems facing urban centres in Nigeria, but that of Lagos seems to be on the increase due to the high volume of waste generated daily by the teeming population. Although the actual figure on per-capita household waste for the whole city is lacking, estimates from Lagos State Waste Management Authority (2006) showed that over 307.15 tons of trash, garbage, scraps and other debris were generated in 2008 by 122,862 households in Lagos Island Local Government Area (2.5kg per-household). Wahab and Saeed (2011) noted that rapid rate of per capita waste in the city is increasing geometrically due to the high level of urbanisation and subsequent population growth. The authors maintained that solid waste management in urban centres especially in developing countries where urban spatial growth is unguarded due to population explosion and the need to satisfy basic needs of man has proven to be a very difficult task. Efforts by the government to effectively manage solid waste in the city are faced with lots of challenges ranging from human to material.

Noise pollution accounted for about 22% of variance ($\beta = 0.223$, $P< 0.05$) when other variables were held constant in the model. Noise pollution is another major problem the city is facing due to large influx of vehicles and trucks into the city and the conversion of residential neighbourhoods for commercial use. In their study on assessment of the noise level in commercial and industrial centres of the city, Abiodun *et al*. (2011) reported a mean noise level of 84.2 to 87.6 dBA for some commercial centres of the city. The authors maintained that these figures were very close to the 90.0 dBA recommended by the Federal Environmental Protection Agency (1991) and that urgent steps must be taken to prevent further increase.

Looking at the city's configuration in terms of land use pattern, there is no clear distinction in land use as such. Hence, commercial centres are located in residential neighbourhoods. Festac neighbourhood at its inception in the 70s was designed purely for residential purposes; however, over the years, most part of this neighbourhood has been converted for commercial use. Mushin, which is purely a low-income nieighbourhood, lacks planning, and buildings are used for both commercial and residential purposes. Going by the World Health Organisation's (1999) recommended noise level of 60dBA acceptable noise for residential neighbourhoods, one would say that the noise level in the two neighbourhoods of the city, based on the findings of Abiodun and colleagues, was above normal. This situation has even worsened since refineries in the country stopped producing at their installed capacity, so refined petroleum products are now

imported through the Lagos port, leading to a large influx of fuel tankers from other parts of the country. There are about 2,600 km of road networks in Lagos city with over a million vehicles on a daily basis. The city has about the highest national vehicular density of over 222 vehicles/km against the national average of 11 vehicles/km (Taiwo, 2005). In their study, Olayiwola *et al*. (2006) noted that environmental quality in the city has a great implication on the wellbeing of residents. The authors reported that the two major environmental problems facing the city are noise pollution and flooding. They noted that noise pollution in the city could be reduced if the government put appropriate legislation to curb the current trend whereby apartments meant for residential purposes are turned into commercial purposes such as hotels, restaurants and other commercial activities.

Model fit indices in SEM is still being debated by researchers. There is still no consensus on the form and type of fit indices that should be used for model integrity. The Goodness of Fit Index (GFI) according to Kelly (2011) is analogous to R^2 in MLR and provides an estimate for the amount of covariance accounted for by the model; higher values closer to 1 indicate a better fit (Hair *et al*., 1998).The Root Mean Square Error of Approximation (RMSEA) is a measure of error of approximation, with values below 0.05 suggesting a close fit and values under 0.08 suggesting a reasonable fit (Keith, 2006). Chi-square (X^2) measures the discrepancy that exists between the sample covariance or correlation matrix and fitted covariance or correlation (Joreskog & Sorbom, 1993). Non-significant X^2 denotes that no discrepancy exists between the sample and the fitted covariance, indicating that the model has a good fit. The results of the structural equation model for environmental quality domain are presented in Fig. 5. Standardised regression weights are shown on each of the arrows connecting the predictor variable to the dependent variable. A major advantage of using standardised regression coefficients is the ability to compare the relative magnitude of effects across variables (Kelly, 2011). The regression (Beta coefficient) weight for drainage as shown in Fig. 4 is 0.29, waste management 0.24 and noise pollution 0.22. Relating this with the results in Table 1, it was obvious that both the values obtained from the regression model and structural equation model were the same. The model fit indices (X^2=2.810, P=0.422, GFI=0.997, AGFI=0.990, RMSEA=.000, dof=3, N=450) showed an extremely good fit of the model to the data; hence, we are confident that the model itself could have produced the underlying data.

Public facilities

Another null hypothesis (H0) of the study was that provision of Public Facilities (PF) is not strongly related to residents' neighbourhood satisfaction. In testing this hypothesis, some predictor variables were regressed against neighbourhood satisfaction.

Equation 1. 2

$$y + A + B1x + B2x + B3x + B4x + B5x + B6x + \varepsilon$$

y = neighbourhood satisfaction
B1…..B6 = public schools, potable water, roads, open space, street lighting, shopping malls

This equation measures the predictive power of public facilities on residents' neighbourhood satisfaction.

The results in Table 3 show that public facilities in the neighbourhoods are strongly related to residents' satisfaction (F=15.324, $p<0.05$). Looking at the variables in the model, potable water (β=.238, $p<0.05$) accounted highest in explaining the variation in neighbourhood satisfaction when other variables were held constant. It accounted for about 24% of variance in residents' satisfaction with their neighbourhood in this study. Also, street lighting accounted for 23% (β 0.233, $p<0.05$), open space 19.5 % (β 0.195, $p<0.05$), roads 9.2 % (β 0.092,

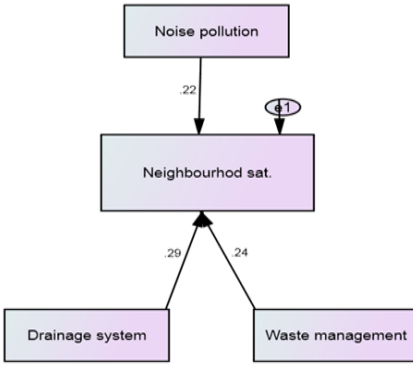

Fig. 4: Structural equation model (SEM) on environmental condition.

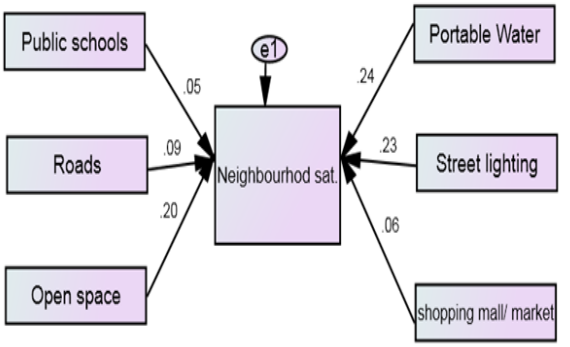

Fig. 5: Structural Equation Model (SEM) on public facilities.

Table 3:
MLR Diagnostics

Model	Unstandardised Coefficients		Standardised Coefficients		
	β	Std. Error	β	t	Sig.
(Constant)	2.741	.151		18.100	.000
Public schools	.022	.020	.047	1.080	.281
Potable Water	.097	.018	.238	5.499	.000
Roads	.039	.018	.092	2.142	.033
Open space	.062	.014	.195	4.504	.000
Street lighting	.092	.017	.233	5.377	.000
shopping malls and market	.030	.020	.065	1.507	.133

R 0.411, $R^2 = 0.169$, Std.Error of estimate = 0. 66655, F = 15.324
* Statistically significant at p=0.05

p<0.05). In contrast, public schools (β=0. 047, p>0.05) and shopping malls/markets (β 0.0 065, p>0.05) were not significantly related to neighbourhood satisfaction. Their contribution in explaining residents' satisfaction in the model was very small. Public school could only account for less than 5% (4.7) of the variance when other variables in the model were held constant while shopping malls/markets accounted for less than 7% (6.5).

The model fit indices on public facilities and neighbourhood satisfaction (Fig.6) shows a good fit of the model to the data (X^2 = 23.3, p = 0.08, GFI = 0.985, AGFI = 0.972, RMSEA = 0.035, dof = 15, N = 450). Looking at the relative magnitude or predicting power of each variable in the model, potable water (β 0.24) had the highest predicting power followed by street lighting (β 0.23), open space (β 0.20), roads (β 0.092). These four variables contributed significantly in accounting for variance on residents' satisfaction. The other variables (shopping malls/market, public schools) had little effect on the overall model. In other words, their predicting power or contribution to the model was very small.

Transportation

Transportation is one of the domains used in the study for measuring neighbourhood satisfaction. In this study, we hypothesised that (H0) transportation (TS) was not strongly related to neighbourhood satisfaction of residents. Three predictor variables (time spent on traffic, availability of public transport, commuting time to work) were regressed against neighbourhood satisfaction.

Equation 1.3

$$y = A + B1x + B2x + B3x + \varepsilon$$

y = neighbourhod satisfaction
B1…B3 = public transport, commuting time to work, time spent on traffic

Results in Table 3 reveal that transportation was significantly related to residents' satisfaction with their neighbourhood (F = 21.575, p<0.05). Thus, the null hypothesis is rejected while the alternative is accepted. The model explained 0.125 or 13% of variance in residents' satisfaction with their neighbourhood. Considering the fact that there were other variables that influenced neighbourhood satisfaction which were not included in the study, one would say that the model was a good one. However, the predicting power of the three variables in the model varied. Commuting time (β 0.211, p<

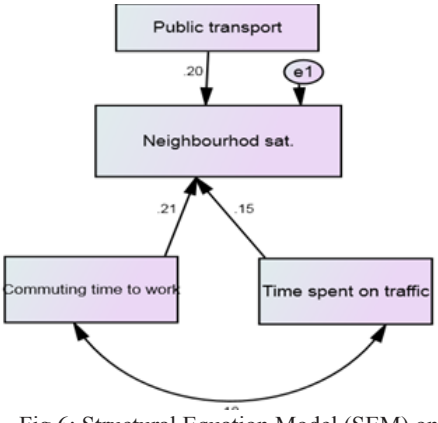

Fig.6: Structural Equation Model (SEM) on transportation.

Table 4:
MLR Diagnostics

	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
	β	Std. Error	β		
(Constant)	3.026	.115		26.393	.000
Public transport	.074	.016	.203	4.627	.000
Commuting time work	.079	.017	.211	4.729	.000
Time spent on traffic	.064	.019	.146	3.276	.001

R 0.353, R^2 = 0.125, Std.Error of estimate = 0. 68191, F = 21.575
* statistically significant at p = 0.05

0.05) accounted for about 21% of variance in residents' satisfaction with their neighbourhood when other variables were held constant. Considering the fact that the city witnesses daily inflow of traffic, the time residents spend in getting to their places of work to a certain level determines their satisfaction with their neighbourhood. Similarly, availability/access to public transport (β 0. 203, $p<0.05$) is related to residents' satisfaction. What this suggests is that a unit addition to public transport in the two neighbourhoods while other variables were held constant would lead to a 20% variance in neighbourhood satisfaction whereas a unit increase in the amount of time spent by residents on traffic lead to about 0.146 or 14% variance.

The model fit indices for transportation and neighbourhood satisfaction (Fig.6) shows a good fit (X^2=1.258, p=0.533, GFI =0.999, AGFI=0.993, RMSEA=0.000, dof=2, N=450). The three variables in the model commuting time to work (β 0.21), public transport (β 0.20) and time spent on traffic (β 0.15) had significant influence on residents' neighbourhood satisfaction.

Social Environment

We hypothesised that (H0) social environment is not strongly related to neighbourhood satisfaction of residents in the two neighbourhoods. The social environment domain was measured by four predictor variables (safety, recreation centre/ open space, friendliness of neighbours and good neighbourhood for raising children).

Equation 1.4

$$y = A+B1x +B2x +B3x +B4x +\varepsilon$$

y = neighbourhood satisfaction

B1…B4 = safety, friendliness of neighbours, recreation facilities, good neighbourhood for raising children.

The social environment as shown in Table 5 was strongly related to residents' satisfaction with their neighbourhood (F = 50.608, $p<0.05$). These four variables accounted for about 0.308 or 30% of variance in residents' satisfaction. This model could be adjudged a good one because not all variables that influence neighbourhood satisfaction were covered in the study. Looking at the predicting power of each variable in the model, friendliness of neighbours (β = 0.478, $p<0.05$) accounted

Table 5:
MLR Diagnostics

	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
	β	Std. Error	β		
(Constant)	2.856	.125		22.896	.000
Safety from crime	.056	.013	.172	4.413	.000
Friendliness of neighbours	.082	.007	.478	12.107	.000
Recreational centre	.045	.012	.143	3.631	.000
Neighbourhood good for raising children	.045	.017	.107	2.741	.006

most, followed by safety from crime (β 0.172, $p<0.05$), recreational centre (β 0.143,$p<0.5$) and good neighbourhood for bringing up children (β 0.107, $P<0.05$). One reason that may be adduced to the high predicting power of social relations (friendliness of neighbours) in the model is based on the fact that in Nigeria when people are making a residential choice, great premium is given to social relations with emphasis on culture, religion and economic status. Most people would not want to reside in some neighbourhoods even when other conditions are met until they are convinced about the social relations existing in those neighbourhoods. Similar to that is safety; no matter the level of provision of services and facilities in a neighbourhood, many would consider their safety first before any other factor. The findings of this study corroborated Lansing and Marans' (1969) assertion that though planners support the importance of physical characteristics (environment), residents consider social factors first before any other factors in judging a neighbourhood. As could be seen from the four domains used in this study to evaluate neighbourhood satisfaction, the social domain had the highest F value of 50.608 and R^2 of 0.308 or 30.8%. What this suggests, is that the social factors were of greater importance to residents in judging their neighbourhood than the other factors (environmental quality, public facilities, transportation).

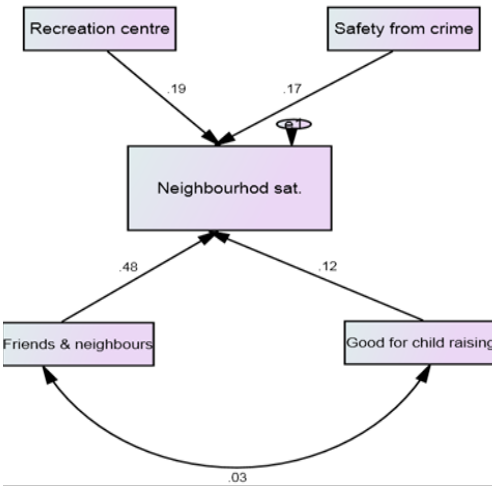

Fig.7: Structural Equation Model (SEM) on social environment.

The social domain shown in the SEM (Fig. 7) involved four variables. The model result showed a go fit ($X^2 = 7.029$, $p=0.218$, GFI = 0.994, AGFI = 0.982, RMSEA =

0 .030, dof = 5, N = 450). Friendliness of neighbours. (β 0.48) has the highest predicting power among the four variables followed by recreation centre (β 0.19), safety (β 0.17) and good neighbourhood for bringing up children (β 0.12). The significant contribution of safety from crime in this model contradicts the findings of earlier research (Lipsetz, 2000; Newman & Duncan, 1979; Petras, 2003) who reported that it has often failed to make a significant statistical contribution to satisfaction.

CONCLUSION

The findings of the study showed that the four domains (environmental quality, social environment, transportation, facilities) used in this study significantly influenced neighbourhood satisfaction of residents' in the two neighbourhoods (Mushin and Festac). However, the level of their effects varied as shown by the predicting power of the models. The social environment domain model had the highest predicting power (R^2 = 0.308, Std.Error of estimate = 0. 60676, F = 50.608) followed by environmental quality model (R^2 = 0.203, Std.Error of estimate = 0.65063, F = 38.63), facilities (R^2 = 0.169, Std.Error of estimate = 0. 66655, F = 15.324) and transportation (R^2 = 0.125, Std.Error of estimate = 0. 68191, F = 21.575). Among all the variables in the models, friendliness of neighbours (β = 0. 48) had the strongest predicting power on neighbourhood satisfaction followed by drainage (β = 0.29), waste management and potable water (β = 0.24), street lighting (β = 0.23), noise pollution (β = 0.22), commuting time to work (β = 0.21), public transport (β = 0.20), recreational centre (β = 0.19). The contribution of each of these variables showed their relevance in explaining what influenced residents satisfaction in the two neighbourhoods. However, there should be caution when using these variables as measures for assessing neighbourhood satisfaction because some other latent variables or factors are equally at work. Policymakers should be cautious of such a neat, short-hand approach when addressing the needs of residents. As could be seen from this study, public schools (β = 0.047) and shopping malls/markets (β = 0.065) did not have a significant effect on neighbourhood satisfaction of residents in the two neighbourhoods. What this implies in essence is that focusing much attention on the provision of public schools and markets in these neighbourhoods by government may not really yield the desired results in terms of promoting neighbourhood satisfaction among residents. This finding does not negate the importance of public facilities in urban centres. The role which such facilities and amenities play indirectly, for example, enabling social interactions to take place, is little understood in contemporary society and is a weakness in our comprehension of urban neighbourhoods today (Parkes *et al*., 2002). Interestingly, people placed great premium on social environment of the neighbourhood in which they lived. The reason for this is not far-fetched; in African culture, social ties and relations are a part and parcel of society; hence, friendliness with one's neighbours gives

a sense of satisfaction and belonging. Despite the harsh economic situation in Nigeria, the citizens are adjudged as being one of the happiest peoples of the world (Gallup global poll 2010). Our findings have shown that a variety of factors accounted for residents' level of satisfaction with their neighbourhood. What constitutes satisfaction varies according to numerous related circumstances. Communities do not have the same level of infrastructure; likewise, residents and residents from a varied cultural background may live in a neighbourhood, and yet not share similar views regarding environmental features (Caughy *et al*., 1999; Schell & Ulijaszek, 1999). The question of which neighbourhood attributes are most important in predicting satisfaction is of great interest to policymakers, yet it is a difficult one to answer because satisfaction studies vary greatly in the range of variables covered and in the sample population, from nation-wide surveys to surveys of groups or neighbourhoods in a single city (Parkes *et al*., 2002). The study has been able to relate SEM path diagrams with that of MLR in establishing the factors that influence neighbourhood satisfaction among residents of low- and medium-income areas of the city. Based on the findings of the study, it is obvious that the provision of physical infrastructure alone does not necessarily translate to residents' satisfaction with their neighbourhood. Planners and policy-makers alike should incorporate those factors that promote social relations among residents in order to help to them fulfil their life desire.

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