mostly in form of casual labour and providing food at construction sites. Agbola (1990a; and 1993), Mascarenhas (1999) and Olatubara, (2007) have demonstrated that women are actively involved in housing construction and highlighted their contributions in housing construction sites as mostly labour in production of building materials and fittings which include bricks, concrete blocks, and tiles, roofing sheets, wash-hand basins and water pumps. Other roles of women include serving as crisis managers (Schmink,1984), playing monitoring role during construction to prevent theft (UNCHS,1985; Agbola, 1990a), being actively involved in housing finance especially if she has offspring for the man (Agbola, 1990a) and being physically involved in actual construction as observed in professional women in the built environment.

In devising new housing solutions and policies, Agbola (1990b); Moser (1992, 1993), Wood (1993); Young (1995) and Pascal (1997) observed that there have been age-long assumptions which do not fit the reality of women's life in developing countries. The first assumption holds that the household consists of a nuclear family of husband, wife and two or three children. This assumption fails to recognise that low-income households are not homogenous in terms of family structure. Although nuclear families may be the dominant type, a diversity of other structures may occur. For instance, the changing social conditions, which disrupt traditional patterns of family and kinship, have increased the number of female-headed households. Here, the male partner is absent, either temporarily because of migratory or permanently because of abandonment, divorce or death. Moser (1992) and Chant (1997) observed that an estimate of one-third of the households is now headed by women. With the frequent retrenchment, collapse of financial institution and brain-drain syndrome, there are strong indications that such households have increased in Nigeria (Siyanbola, 1995). In such households, women shoulder almost all, if not all, the responsibilities of a male household head.

It is also assumed that in the family, there is a clear division of labour in which the man of the family, as the breadwinner, is primarily involved in productive work outside the home while the woman, as the housewife, takes overall responsibility for the reproductive and domestic work involved. This second assumption fails to recognise that women in low-income households perform "triple roles" (Moser, 1992, 1993; Brett, 1991 and Young 1995). First, women's work includes reproductive role incorporating child-bearing and rearing. Second, it includes productive tasks, often as secondary income earners, located within the home or in informal sector enterprises. Third, it is increasingly expanding to include community-managing operations, and organisational jobs undertaken at the neighbourhood level. Notably, unlike men, women are severely constrained by the burden of simultaneously balancing these three roles. Their reproductive and community-managing works are often seen as natural or non- productive, not valued as work.

Ignoring gender divisions and interest in urban studies (housing studies inclusive) is neglecting an important structuring element of urban space and urban processes (UNCHS, 1996). Little or no importance is attached to the role, the specific requirements, attitudes and values of women with respect to both the dwelling and its environment. Researches on issues related to women and issues of housing had suggested that there is need for recognition of women's contribution to housing development, establishment of ways and means of enhancing their potential and identification of specific gender problems with respect to all aspect of housing development. They also suggested that there should be policy crusade for equity, equality, social justice and the elimination of all forms of discrimination against women.

3. Methodology

Both primary and secondary data were used for this study. Primary data collection involved administration of a set of structured questionnaire to the household-head (women and men) in the selected owner-occupied residential buildings. A multistage-stage sampling procedure was adopted for the study. The six state capitals in Southwestern Nigeria (Ikeja, Abeokuta, Ibadan, Osogbo, Akure and Ado-Ekiti) were purposively selected because they are primate cities. All the localities in each capital city were identified and three localities were randomly selected. Ten percent of all the roads in the selected localities in each state capital were randomly selected. All residential buildings

(21,800) facing the selected road networks were enumerated and 1,090 (5%) of these buildings were randomly selected for the study. A set of structured questionnaire focusing on socio-economic characteristics (sex, age, income among others) and factors influencing both male and female involvement in housing development processes was administered to household heads in these buildings. A total of 1090 household heads comprising 794 males and 296 females were sampled. Purposive sampling method was used to conduct in-depth interviews on a cross-section of the household heads in order to share their experiences during housing development processes. Descriptive and inferential statistics were used in analysing quantitative data collected for the study, while qualitative data were content analysed.

4. Findings and Discussion

Investigations on socio-economic characteristics of respondents revealed that 794 (72.8%) were male and 296 (27.2%) female. Majority [826 (75.6%)] comprising 636 (81.6%) male and 190 (65.5%) female were aged more than 35 years. The study also revealed that more male [103 (71.0%)] than female [42 (29.0%)] earned monthly income between ₦18,000 and ₦50,000 and more males [193 (76.0%)] than females [61 (24.0%)] earned between ₦50,000 and ₦200,000; 676 (85.1%) males and 192 (64.9%) females were married and do engage in housing development processes; 631 (57.9%) comprising 483 (60.8%) male and 148 (50.0%) female respondents belonged to households of between 4 and 6 persons (See Table 1).

4.1 Gender Variations in Level of Agreement on Factors that Influence Involvement in Housing Development

To have a better understanding of factors that influenced respondents' involvement in housing development, a 5-point Likert Scale was developed to measure respondents' perception based on some propositions on social, cultural and economic factors that have been established in the literature that might influence gender variation in men and women's involvement in housing development. Respondents were instructed to indicate their level of agreement with each of the identified eighteen propositions, selecting from 'Strongly Agreed' (S.A), 5 Points; 'Agreed' (A), 4 Points; 'Undecided' (U) 3 Points; 'Disagreed' (D), 2 Points; and 'Strongly Disagreed' (SD), 1 Point. To obtain Summation of Weighted Value (SWV), there was need to sum up the product of the total numbers of responses to each variables and the weight attached to each ratings, i.e. (ax5) + (bx4) + (cx3) + (dx2) + (ex1). The mean used in the course of computation was also obtained by summing up the SWV and dividing it with the total number of variables (n = 18).

The deviation (which is also used as GLA) and standard deviation were also calculated to be able to establish the level of agreement on factors dictating involvement of both men and women in housing development. From this calculation, a positive deviation indicates a high level of agreement, and when the deviation is negative, it depicts a low level of agreement.

Note:

NR (f) = number of respondents (no of copies of questionnaire)

SWV = Summation of Weighted Value

$\bar{x} = Mean = \frac{\sum \text{SWV/NR (f)}}{\text{No. of Variables}}$

$D = \text{Deviation (Adequacy Index)} = \text{SWV/NR (f)}\bar{x}$

d^2 = Standard deviation

Respondents' scores on each of the propositions were scored to obtain the Gender's Level of Agreement (GLA) with each of the propositions. Scores obtained for the various propositions are presented in Table 2.

The deviation (which is also used as GLA) and standard deviation were also calculated to be able to establish the level of agreement on factors dictating involvement of both men and women in housing development. From this calculation, a positive deviation indicates a high level of agreement, and when the deviation is negative, it depicts a low level of agreement.

The analysis revealed that eight (8) of the eighteen (18) aspects of the propositions for male respondents had positive deviation about GLA. These aspects were that: registration of building title as jointly owned by both of us has helped in the house completion (0.43); I wish my spouse is involved in the decision of my choice of housing development (0.31); religion is a significant factor for my involvement in housing development (0.3);

increase in income has increased the speed of my housing development (0.2); my extended family members do not have a share in the ownership of my property including this house (0.18), my family size has great influence in my housing finance and rate of development (0.10); the education of my children have influence in my housing development (0.03); and, family type has great influence in my involvement in housing development (0.04); As it could be observed in Table 2, 'registration of building title as jointly owned by both of us has helped in the house completion' has the highest positive agreement index of 0.43. This implied that registration of building title as jointly owned by both spouses has great influence on the decision of male respondents in their decision on being involved in housing development. Next in importance was 'I wish my spouse is involved in the decision of my choice of housing development' with agreement index of 0.31. This was followed closely by the proposition: "religion is a significant factor for my involvement in housing development" with an agreement index of 0.30. The criterion with the highest deviation about the mean index for male respondents is 'I believe my wife and children can inherit my property' with -0.44 agreement index, implied that inheritance of property by children or spouse has the least influence in involvement in decision to be involved in housing development. This was followed, in increasing order, by 'I believe my wife/husband has what belongs to me' having agreement index of -0.36; followed by, 'existing male culture has great influence on my involvement in housing development process' having a gender agreement index of -0.31. The proposition which has the highest negative agreement index for female respondents states that 'I can allow my husband/wife to have house of his own' with agreement index of -0.49. This has the least influence on involvement in housing development processes of the respondents, and was followed by 'existing male culture is a great influence on my involvement in housing development' with agreement index of -0.38. Other propositions in this category include: 'I believe my spouse owns what belongs to me' with agreement index of -0.31 and 'having high financial backup enhances my involvement in housing development processes' with agreement index of -0.26.

It can be inferred from the above analysis that 'registration of building title as jointly owned by both spouse aids in the completion of the building' (0.61) and 'religion'(0.34); are the two major factors that influence involvement of both male and female respondents in housing development processes. This corroborates the findings of Larson(1991); Macaloo (1990), Ntege (1992) and Obbo (1976 &1984) had also identified a series of factors influencing participation in informal urban housing development in urban housing development in particular to include economic, socio-cultural and political environments.

Those propositions with negative agreement indexes implied that these could have influence on people's decision to participate in housing development processes too but their impact may have less influence to pronounce much effect on decision making.

The study also employed factor analysis to identify the major factors influencing the involvement of both men and women in housing development processes. The extraction method used was Principal Component Analysis. According to Tabachnick and Fidell (1996); they suggested that variables with loadings of 0.32 and above may be interpreted. In other studies where factor analysis has been applied 0.32 and 0.55 were used as cut-off points. This study therefore used 0.55 which is considered to be good as it has 30% overlapping variance (Tabachnick and Fidell, 1996). Eighteen variables which are closely related to factors influencing the involvement of both men and women in housing development processes in southwest Nigeria were loaded for analysis.

As presented in Table 3, four factors had significant influence on the involvement of both men and women in housing development processes. It should be noted that variables loaded on factor 18 do not have up to four variables with high loadings as such was expunged and not interpreted (Velicer and Fava, 1998). Displayed in Table 3 were variables and their codes. The communalities of all the variables as presented in Table 3 were above 0.55. Having said this; the entire 18 variables were then reduced to four factors which accounted for 80.83% of the entire 18 variables initially loaded.

Factor 1 has eight variables loaded on it. It is named *Cultural and Religious factors.* These are factors relating to social or spiritual beliefs that

influence the involvement of both men and women in housing development processes. They are arranged in order of priority and they are as follows: 'I believe my family members will not take possession of this house after my demise' (0.942); 'my extended family members do not have a share in the ownership of my property' (0.914); 'existing male culture is a great influence on my involvement in housing development' (0.914); 'I believe my husband/wife owns what belongs to me' (0.778); 'I believe that my wife/ husband and children can inherit my property' (0.733); 'Conflict of interests in gender roles is a significant factor in housing development involvement' (0.723); 'I can allow my spouse (wife) to have a house of her own' (0.707); and 'Religion is a significant factor for my involvement in housing development' (0.607). All these accounted for 26.072% of the total variance explained on factors that influence both gender involvements in housing development processes (Table 3).

Five variables were loaded as factor 2 called *Family obligations and responsibilities.* This is because factors loaded here explain what happens when family responsibilities of an individual influences (increase or decrease) the individual involvement in housing development processes. The variables in this factor were: 'The education of my children has influence in my housing development finance' (0.925); 'training of my children has great influence in the rate of my housing development' (0.892); 'family type has great influence in my involvement in housing development' (0.889); 'my family size has great influence on my housing finance and rate of development' (0.772); and 'wish my spouse is involved in the decision of my choice of housing development' (0.754). Table 2 showed that the total variance explained by these factors was 22.678%. Cumulatively, this accounted for 48.749%.

Factor 3 had four variables loaded on it. The variables were: 'I like planning/ spending my income together with my spouse' (0.845); 'increase in income has increased the speed of my housing development completion' (0.838); my wife/ husband is fully aware of my income' (0.825) and 'having high financial backup enhances my level of involvement in housing development' (0.791). The variables loading connote *Economic Factors.* This is because the variable loaded here explained the spending pattern and influence of finance on involvement of an individual in housing development processes. The total variance explained by this factor was 21.362. Cumulatively, these three factors accounted for 70.11% (See Table 4).

A typical illustration of how culture affects women in participating in housing development processes is presented by a 45–year-old widow during the interview session thus:

> *I am a 45 years old widow with four kids aged between 5 and 14. I am wholly responsible for providing meals, education and shelter for the family. The house my husband started was not completed before his death and my in-laws came to ask me to sell the building off in order to offset some of my husband's outstanding debts during his lifetime. I had a meeting with my children and we decided not to sell it off. I have been having issues with my in-laws ever since. The house rent in this area has increased and I couldn't afford it, hence, our decision to move into this building. The house is still not completed and none of my husband's family came to our aid. The children's school fees are gulping all the income of the family. This has really affected my ability to complete the project. However, I'm so happy that paying housing rent is no longer part of my headache.*

Another peculiar case is that of a man who had the title to the land in his wife's name. He justified his decision thus:

> *I have only one wife. The challenges I faced during the early period of my marriage taught me great lessons. It taught me to register the title of all my capital projects in the name of my spouse. I believe I'm doing it for her and our children. I don't want problem from my family in case I die today. Registering the building title document in her name will give her right of ownership after my demise. I believe she can take care of our children more than any of my relations.*

A hypothesis that there is no significant difference between male and female involvement in housing development was tested using t-test at 0.05 level of significance. The result is presented in Table 6. In this study, the level of significance is 0.039 (less than 0.05), so we used the second row of t-test results. However, with t obtained of -0.1929 and with 554.224 degrees of freedom (df = n-2), it is significant at the $P<0.05 = 0.005$. Thus, we concluded that there were significant differences in

male and female involvement in housing development.

It was observed however that the male respondents involved in housing development at an average of 0.05693996 higher (larger) than their female counterparts.

Against this backdrop, the hypothesis which states that there is no significant difference between male and female involvement in housing development is rejected. This was most probably reflected in the economic differences between the male and female heads, especially since male heads in the study area had better-paying jobs (see Tables 1 and 6) than female heads.

5. Conclusion and Recommendations

The study analysed the factors influencing men and women involvement in Housing development process in Southwest Nigeria. It reveals that increase in income has greater influence in the housing development processes of both male and female while joint registration of building title as jointly owned by both spouses has helped in the completion of housing units. These were the two major factors that influence involvement of both male and female respondents in housing development processes. The study also revealed that among the four factors that have significant influence on the involvement of both men and women in housing development processes viz a viz: cultural and religious factors, family obligations and responsibilities and economic factors are the major factors that has greater influence on both men and women in their involvement in housing development processes in that order. It can be inferred based on the result that regardless of gender (male and female), the respondents could be influenced by cultural belief or religious backgrounds, economic strength and family obligations and responsibilities/ obligations which can influence the speed of completion of a housing project. The study established that male participated more in housing development due to socio-cultural and religious belief system among the people, especially the believe that housing development is strictly a male obligation to the family. There is need for the provision of institutional supports with mortgage banks, cooperatives societies and estate financiers in the distribution of loans (with low interest rates) to persons of middle, low income group and others who may need loan assistance in the construction of their houses.

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Table 1: Socio-economic Characteristics

Variables		Freq.	(%)				
Gender	Male	794	72.8				
	Female	296	27.2				
	Total	1090	100.0				
		Male		Female		Total	
Age (in Years)		Freq.	%	Freq.	%	Freq.	%
	19-35	158	19.9	102	34.5	260	23.9
	36-45	184	23.3	72	24.3	256	23.5
	46-55	207	26.1	58	19.6	265	24.3
	56-65	144	18.1	32	10.8	176	16.1
	66 and above	101	12.7	32	10.8	133	12.2
	Total	794	100	296	100	1090	100
Monthly Income (in Naira)	< 18000.00	76	9.6	65	22.0	141	12.9
	18000- 50000	103	13.0	42	14.2	145	13.3
	50001- 200000	193	24.3	61	20.6	254	23.3
	200001- 500000	271	34.1	106	35.8	377	34.6
	>500000.00	151	19.0	22	7.4	173	15.9
	Total	794	100	296	100	1090	100

Marital Status	Married	676	85.1	192	64.9	868	79.6
	Single	94	11.8	40	13.5	134	12.3
	Widowed	14	1.8	48	16.2	62	5.7
	Divorced	3	0.4	2	0.7	5	0.5
	Single parent	5	0.6	7	2.4	12	1.1
	Separated	2	0.3	7	2.4	9	0.8
	Total	794	100	296	100	1090	100
Household size (Persons)	1-3	148	18.6	63	21.3	211	19.4
	4-6	483	60.8	148	50.0	631	57.9
	7-9	115	14.5	61	20.6	176	16.2
	≥ 10	48	6.1	24	8.1	72	6.6
	Total	794	100	296	100	1090	100

Source: Field Survey, 2017

Table 2: Genders' Level of Agreement (GLA) for factor dictating involvement in housing development (Southwest Nigeria)

S/NO	Propositions	No	Respondents Level of agreement									
			SA	A	U	D	SD	SWV	SWV/N	*x*	*x*-*x* (D)	(*x*-*x*) = (D^2)
Male												
1	Existing male culture is a great influence of my involvement in housing development	794	412	227	20	109	26	3272	4.12		-0.18	0.034
2.	I believe my husband/ wife owns what belongs to me	794	397	251	20	126	-	3301	4.15		-0.21	0.0441
3.	I believe my husband/ wife and my children can inherit my property	794	445	276	46	27	-	3521	4.43		-0.49	0.0401
4	My extended family do not have share in the ownership of my property	794	272	347	48	02	35	2931	3.69		0.25	0.0625
5	I believe my extended family members will not take procession of this house after my demise	794	354	272	49	28	91	3152	3.97		-0.03	0.0009
6.	My wife/ husband is fully aware of my income	794	322	264	81	127	-	3163	3.98		-0.04	0.0016
7.	I like planning and spending my income with my spouse	794	334	285	99	76	-	3259	4.11		-0.17	0.0289
8.	I can allow my spouse to have a house of her own	794	428	281	-	76	9	3425	4.31	3.94	-0.37	0.1369
9.	Conflict of interest in gender roles is a significant factor in housing development	794	212	509	-	47	26	3216	4.05		-0.11	0.0121
10.	Having high financial backup enhances my level of involvement in housing development	794	263	354	68	92	17	3136	3.95		-0.01	0.0001
11.	My family size has great influence in my housing finance and rate of development	794	290	278	84	98	44	3024	3.81		0.13	0.0169
12.	The education of my children have influence in my housing development	794	341	234	101	101	17	3163	3.98		-0.04	0.0016
13.	Training of my children has great influence in the rate of my housing development	794	340	340	70	-	44	3314	4.17		-0.23	0.0529
14.	Increase in income has increased the speed of my housing development	794	293	275	135	65	26	3126	3.94		0.00	0.0000
15.	Religion is a significant factor for my involvement in housing development	794	113	320	24	320	17	2574	3.24		0.7	0.49
16.	Family type has great influence in my involvement in housing development	794	192	407	49	146	-	3027	3.81		-0.13	0.0169
17.	I wish my spouse is involved in the decision of my choice of housing development	794	236	280	121	121	36	2941	3.70		0.24	0.0576
18.	Registration of building title as jointly owned by both of us has helped in the house completion	794	185	290	117	158	44	2796	3.52		0.42	0.1764
	Total								**70.93**			**1.0553**

Table 2: Genders' Level of Agreement (GLA) for factor dictating involvement in housing development (Southwest Nigeria) Cont'd

S/No	Propositions	No	Respondents Level of agreement SA	A	U	D	SD	SWV	SWV/N	x	x-x (D)	(x-x) = (D^2)
Female												
1	Existing male culture is a great influence on my involvement in housing development	296	170	71	7	42	6	1239	4.19		-0.18	0.034
2.	I believe my husband/ wife owns what belongs to me	296	146	91	7	52	-	1218	4.12		-0.11	0.0121
3.	I believe my husband/ wife and my children can inherit my property	296	162	103	24	7	-	1308	4.42		-0.41	0.1681
4	My extended family do not have share in the ownership of my property	296	108	119	26	34	9	1179	3.98		0.03	0.0009
5	I believe my extended family members will not take procession of this house after my demise	296	132	102	25	7	30	1187	4.01	4.01	0.00	0.000
6.	My wife/ husband is fully aware of my income	296	128	92	24	52	-	1184	4.00		-0.01	0.0001
7.	I like planning and spending my income with my spouse	296	117	122	19	38	-	1206	4.07		-0.06	0.0036
8.	I can allow my spouse to have a house of her own	296	156	120	1	16	3	1298	4.39		-0.38	0.1444
9.	Conflict of interest in gender roles is a significant factor in housing development	296	90	186	-	14	6	1228	4.15		-0.14	0.0196
10.	Having high financial backup enhances my level of involvement in housing development	296	116	127	15	35	3	1206	4.07		0.06	0.0036
11.	My family size has great influence in my housing finance and rate of development	296	100	138	17	30	11	1176	3.97		0.02	0.0004
12.	The education of my children have influence on my housing development	296	124	116	18	35	3	1208	4.08		-0.07	0.0049
13.	Training of my children has great influence in the rate of my housing development	296	111	150	25	-	10	1240	4.19		-0.18	0.0324
14.	Increase in income has increased the speed of my housing development	296	90	130	56	14	6	1166	3.94		0.07	0.0049
15.	Religion is a significant factor for my involvement in housing development	296	32	148	14	99	3	995	3.36		0.65	0.4225
16.	Family type has great influence in my involvement in housing development	296	88	128	33	47	-	1145	3.87		0.14	0.0196
17.	I wish my spouse is involved in the decision of my choice of housing development	296	90	112	42	42	10	1118	3.78		0.23	0.0529
18.	Registration of building title as jointly owned by both of us has helped in the house completion	296	76	104	43	51	22	1049	3.54		0.47	0.2209
	Total								**72.13**			**1.1449**

Source: Field Survey, 2017

Table 3: Variable communalities

Communalities	**Initial**	**Extraction**
Existing male culture is a great influence on my involvement in housing development	1.000	.914
I believe my husband/wife owns what belongs to me.	1.000	.778
In believe that my wife and children can inherit my property	1.000	.733
My extended family members do not have a share in the ownership of my property	1.000	.914
I believe my family members will not take procession of this house after my demise.	1.000	.942
My wife/ husband is fully aware of my income	1.000	.825
I like planning/ spending my income together with my spouse.	1.000	.845
I can allow my spouse (wife) to have a house of her own.	1.000	.707
Conflict of interest in gender roles is a significant factor in housing development involvement	1.000	.723
Having high financial backup enhances my level of involvement in housing development.	1.000	.791
My family size has great influence in my housing finance and rate of development.	1.000	.772
The education of my children has influence in my housing development finance.	1.000	.925
Training of my children has great influence in the rate of your housing development	1.000	.892
Increase in income has increased the speed of my housing development completion	1.000	.838
Religion is a significant factor for my involvement in housing development	1.000	.607
Family type has great influence in my involvement in housing development	1.000	.889
I wish my spouse is involved in the decision of my choice of housing development	1.000	.754
Registration of building title as jointly owned by both of us has helped in the house completion	1.000	.701

Source: Field Survey, 2017

Table 4: Total variance explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.233	45.741	45.741	8.233	45.741	45.741	4.693	26.072	26.072
2	3.370	18.722	64.464	3.370	18.722	64.464	4.082	22.678	48.749
3	1.596	8.864	73.328	1.596	8.864	73.328	3.845	21.362	70.111
4	1.350	7.499	80.827	1.350	7.499	80.827	1.929	10.716	80.827
5	.854	4.744	85.571						
6	.572	3.180	88.751						
7	.493	2.739	91.489						
8	.368	2.044	93.534						
9	.331	1.838	95.372						
10	.258	1.435	96.808						
11	.167	.930	97.738						
12	.129	.718	98.456						
13	.104	.576	99.032						
14	.059	.329	99.361						
15	.045	.252	99.613						
16	.042	.235	99.847						
17	.015	.086	99.933						
18	.012	.067	100.000						

Extraction Method: Principal Component Analysis

Source: Author's Computation, 2017

Table 5: Component matrix

	Component			
	1	2	3	4
Training of my children has great influence in the rate of your housing development	.883			
My family size has great influence in my housing finance & rate of housing development	.786			
Increase in income has increased the speed of my housing development completion	.781			
I believe your husband /wife owns what belongs to me	.777			
The education of my children have influence in my housing development finance	.759			-.536
Conflict of interest in gender roles is a significant factor in housing development involvement	.724			
I believe that my wife and children can inherit my property	.719			
I can allow my spouse (wife) to have a house of her own	.719			
I wish my spouse is involved in the decision of my choice of housing development	.716			
My wife/husband is fully aware of my income	.685			
Family type has great influence in my involvement in housing development	.674		.563	
Registration of building title as jointly owned by both of us has helped in the house completion	.529		-.522	
Having high financial backup enhances my level of involvement in housing development	.549	.685		
Existing male culture is a great influence of my involvement in housing development	.603	.678		
I believe my family members will not take possession of this house after my demise	.562	.652		
My extended family members do not have a share in the ownership of my property	.625	.627		
I like planning/spending my income together with my spouse	.569	-.612		
religion is a significant factor for my involvement in housing development		.514	.497	

Extraction Method: Principal Component Analysis

a. 4 components extracted.

Source: Author's Computation, 2017

Table 6: T-test result of gender differences involvement in housing development process

		Levene's Test for Equality of Variance		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									upper	lower
Involvement in Housing Development	Equal variances assumed	0.039	.843	-2.757	1088	.006	-0.18717686	0.06789614	-0.32039905	-0.05395468
	Equal variances not assumed			-1.929	554.224	.005	-0.18717686	0.06630351	-0.317417377	-0.05693996

Source: Author's Computation, 2017

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Perceived Environmental Effects of Base Transceiver Stations on Residents in Osogbo, Nigeria

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Abstract

*The enormous increase in the usage of mobile phone telecommunication has led to the growing number of telecommunication Base Transceiver stations (BTS) commonly located within residential areas, thereby exposing residents to their possible negative effects. These effects, especially on residents in Osogbo, Nigeria, have not been given adequate attention in the literature. Hence, the study set out to investigate perceived environmental effects of BTS on the residents in Osogbo, Nigeria. Both stratified and convenience sampling techniques were used in collecting data for the study. The study adopted the statutory stratification of the study area into three zones, such as the core, intermediate/transition zones and the periphery. Six neighbourhoods having TBS, comprising two from each zone, were purposively selected: Oja Oba and Gbemu in the Core, Kelebe and Uniosun area in the intermediate and GRA and Oroki Estate in the periphery. One BTS was purposively selected from each of the six selected communities. All buildings within 300 metre radius of the existing 34 telecommunication base transceiver stations in Osogbo were identified to be 1900. However, there were 355 residential buildings within 300m radius of the BTS in the selected communities. Therefore 150 residential buildings representing 42.3% were selected through systematic random sampling technique, from where household heads were purposively selected and sampled with the aid of a set of pre-tested questionnaire. Data collected were analyzed using descriptive and inferential statistics such as frequency count, percentages, cross tabulation, Relative Impact Index (RII) and correlation. Findings revealed that t residents considered Noise emanating from the BTS generating plant (RII = 3.75 and MD = 1.00) and Vibration (RII = 3.61 and MD = 0.86) as the major environmental effect of BTS. The study also revealed a statistically significant correlation between BTS location and headache (r = 0.168** at p = 0.000 levels, and BTS location and sleeplessness (r = 0.063** and p = 0.000) indicate that the more the residents are closer to the BTS the higher the level of occurrence of headache and sleeplessness. The study concluded that BTS should not be located in areas less than 300 meters to residential buildings.*

Keywords
Base transceiver station, electromagnetic field, locational impact, regulatory standard, Oshogbo

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1. Introduction

Globalization, Urbanization and Digitization are sharing global economic growth. This growth is creating huge demand for private and public sector infrastructural development. With urbanization being the key driver, infrastructure is set to keep increasing substantially. Every society is linked by three different types of infrastructure: transportation, energy and communications (Alade, Bishi and Olajide, 2011). Contemporary urbanization is often distinguished by the level of infrastructure present in a place while the level and availability of telecommunications infrastructure in particular determines the status of cites today (Alade *et al.* 2011). Bell (1979) noted that revolution in communications makes it likely that there will be a major shift in the relative importance of one of the

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infrastructure with communications being the central infrastructure tying the society together.

Information and communication form the basis of human existence. The dawn of effective information dissemination and communication in Nigeria became a reality when the Global System of Mobile Communication (GSM) was approved in Nigeria on the 27th of August in the year 2000, and was launched in 2001, marking the dawn of effective information dissemination and communication in Nigeria. GSM is a vital economic infrastructure that stimulates modern growth and development, such as poverty alleviation, improved welfare and environmental sustainability as it provides effective services such as mobile TV, electronic payments, mobile tracking services, cheaper international calls, internet and mobile banking among others (Bello, 2010). The enormous increase in the use of GSM in Nigeria cannot be underestimated. For instance, the total number of subscribers has increased rapidly over the past decade: at the end of 2005 there were 19,519,154 subscribers, but by the end of 2015 there were 151,017,244, which is equivalent to an increase of 13,149,809 every year. However, in March 2016, there were 148,745,464 subscribers (Nigerian Telecommunications Services Sector Report, 2016). GSM base stations and cellular telephone masts form part of the infrastructure required for an effective communication system. The enormous increase in the usage of mobile phone telecommunication has led to the growing number of telecommunication Base Transceiver Station (BTS) located commonly near homes, hospitals, places of worship, shops and schools among others (Khurana et al., 2009; Olukolajo, Ezeokoli, and Ogungbenro, 2013; and Nigeria Communication Commission [NCC], 2014). The base stations transfer signals between mobile telephones and a network for mobile or normal telephony by means of radio frequency electromagnetic fields.

The increasing number of people being exposed to the electromagnetic fields as a result of the location of base transceiver stations and the possible negative effect on health of residents has been a thing of concern to many people including researchers (Victor, Norbert, Silas, Abraham, and Patrick. 2012). Sensations of burning or warmth around the ear, headache, disturbance of sleep, memory loss, immune functions, stimulating hormones, mammalian brain, sperm motility and morphology, cancer development and neurological pathology syndromes are some of the effects being reported as resulting from living in the vicinity of Base Transceiver Station (BTS) (Santini, Santini, Le Ruz, Danze, and Seigne. (2003), and Shahbazi-Gahrouei, Karbalae, Moradi, Baradaran-Ghahfarokhi (2014)). In consequence therefore, the need for citing telecommunication base transceiver station at appropriate distance according to the accepted standard for the control of electromagnetic radiation as developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) (Akintonwa, Busari, Awodele, and Olayemi, 2009; and Akinyemi, *et., al.,* 2014) is important.

2. The Study Area

Osogbo is the state capital city of Osun State and also doubles as the seat of the Headquarters of both Osogbo Local Government Area situated at Oke Baale Area and Olorunda Local Government Area situated at Igbonna Area. Osogbo is some 88 kilometres by road Northeast of Ibadan, 100 kilometres South of Ilorin and 115 kilometres Northwest of Akure. Osogbo shares boundary with Ikirun, Ilesa, Ede, Ilobu and Iragbiji and is easily accessible from any part of the state because of its centrality. It is about 48 km from Ife, 32 km from Ilesa, 46 km from Iwo, 48 km from Ikire and 46 km from Ila-Orangun. There are 34 telecommunication base transceiver stations located within close proximity to residences in Osogbo with 12 serving 1720.8ha of land in the core area, 11 serving 2909.4ha of land in the intermediate zone and 11 serving the periphery.

In light of the foregoing, the study examined the perceived environmental effects of these base transceiver stations on the residents of Osogbo by examining the proximity of the base stations to each other; to the nearest residential building; and to the adjoining roads in the different residential zones and also by analysing their locational characteristics, economic, social, health and residents' perceived environmental effects in Osogbo.

3. Literature Review

The issue of telecommunication mast location within residential areas calls for attention as researchers have established that sitting of these