masts in residential area had effect on the health of the people (Onifade et al., 2011, Sewo, 2006). Findings on the radiation of the BTS was measured using gauss meter and power density of electromagnetic radiation on buildings around BTS were calculated. The result shows that the radiation emitted exceeds the safety limit set by ICNRIP (Adekunle, Ibe, Kpanaki, Umanah, Nwafor, and Essang, 2015)). For instance, study by Abdel et al (2007) revealed that residents living within 1-5km service radius suffers cancers of the prostate, breast, lungs and leukaemia often resulting to untimely death, fever, and headache. The study also revealed that vibration and pollution of environment due to various activities of generators and mast installation are experienced by the residents. Oni, Amuda, Gilbert, Aseweje and Akinola (2011), assert that blood parameters are affected by exposure to RF radiation. Akinyemi, Makanjuola, Shoewu, and Edeko (2014) also established that most symptoms such as nausea, headache, dizziness, irritability, discomfort, nervousness, depressor, sleep disturbance, memory loss and lowering of libido were common among the inhabitants living within 300m radius to the BTS antennae compared with those living above 300m from the BTS antennae. They suggested that cellular phone BTS antenna should not be closer than 300m to residences in order to minimize exposure of neighbours to radiation.

Oluwajobi, Falusi, and Oyedun (2014) had a contrary assertion that the electric field strength experienced around base stations is within the ICNIRP safety limits, regardless of the position of the exposed person. It was also argued by Ayinmode, and Farai (2014) that people living close to BTS were not affected with any health related issues like depression, sleeping disturbances, headache, memory loss, cancer, blood pressure. However, Felix, Gabriel and Emmanuel (2014) used a cellular mobile network analyzer to measure the received power density from BTS transmitter at residential and commercial areas and the power absorbed was calculated to be 348nW/cm2 at 210m distance from transmitter and become higher as one moved closer to the transmitter from BS. The study concluded that the power density measured within 300m distance from BS transmitter is of higher negative health concern and suggested that BTS transmitter should be located between 300m to

500m distance from human residences. Based on the above results, there is no cogent evidence to conclude that RF radiations from base station are harmful or not harmful to human health. It depends on the location, the system and the service provider's compliance with regulatory bodies and ICNIRP standards. Bello (2010) examined the variation in the satisfaction level of people living around GSM base stations. The study found that residents' satisfaction increases with distance away from the base station. When the effect of fear of health problems exhibited by the residents was introduced, the study found that the variation in the satisfaction level with distance was due to those who harboured fear of health problems.

Considering the potential environmental risks and health impacts associated with the location of BTSs, National Communications Commission (NCC) and National Environmental Standards and Regulations Enforcement Agency (NESREA) have established both technical specifications and environmental guidelines for telecommunications and broadcasting facilities in Nigeria in 2009 and 2011 respectively. The environmental guidelines provided for space requirements, requirement, set-back to residential buildings, screening, tower to tower spacing, and nearness to power lines as follows:

- (a) Setbacks: all telecommunication towers as well as guys and guy anchors shall be located within the buildable area of the property and not within the front, rear, or side building set back the telecommunication tower in excess of 150 meters height shall be set back at a minimum of 50 meters from the right of way of all controlled access, federal and state roads, to provide unobstructed flight paths for helicopters.
- (b) Space requirements: one parking/ loading space shall be required to serve a telecommunication tower site. Any tower site lying 50 meters or less from a paved road shall be paved. If the site is more than 50 meters from a paved road, hard surfacing of parking/ loading space and drive ways shall not be required for those portions of the site lying more than 50 meters from the paved road.
- (c) Residential areas: Telecommunication towers above 25 meters in height are not permitted within district delineated as residential areas. Where there are exceptions to allow it, it must

be placed at a minimum ratio of 3 to 1 distance to the height, to the nearest building.

- (d) **Height of Structure:** free standing mast should not exceed 150 meters in height. Structures above 30 meters in height may only be installed with a clearance certificate issued by the Nigerian Airspace Management Authority (NAMA).
- (e) **Tower to tower spacing:** any new telecommunication tower in excess of 55 meters in height must be located at a minimum of 1 km from any other existing tower in excess of 55 meters in height.
- (f) Screening: An opaque screen at least 2.5 meters in height must surround the base of a telecommunication tower. The screening shall also include landscaping provisions for any portions of the development visible from adjacent residential or used property or right-ofway.
- (g) Co-location: Towers shall be designed and built to accommodate a minimum of three service providers on the same structure if over 25 meters in height.
- (h) Proximity to Power Transmission Line: No tower shall be installed in close proximity to high voltage electrical power transmission lines. The closest distance shall be 120% of the height of the mast.

However, there have been growing concerns that the GSM operators do not comply with these guidelines in the construction of BTSs and masts after they have duly secured approvals from the relevant authorities (Akindele & Adeniji, 2014).

#### 4. Materials and Methods

Primary data were derived through the administration of a set of questionnaire on the residents of the host communities where the BTS are located. Buildings within close proximity, that is, less than 300m, of the selected BTS were surveyed. This range was adopted because it is believed that residents within this radius will feel the impacts of BTS more than residents beyond this distance. Information obtained through the use questionnaire administration includes: information on indicators for environmental, health, economic and social effects of BTS on the host communities.

Both stratified and systematic sampling techniques were used in collecting data for the

study. The study area was stratified into three zones; the core, intermediate/ transition and the periphery (Ministry of Lands, Physical Planning and Urban Development, 2011). Pilot survey revealed that there are 1900 residential buildings within 300m radius to the selected 34 telecommunication base transceiver stations in Osogbo and that 12, 11 and 11 BTS serve the core, intermediate and periphery respectively. However, two BTS were selected from each residential zones of Oja Oba and Gbemu in the core, Kelebe and Uniosun area in the intermediate and GRA and Oroki Estate in the periphery. 150 residential buildings were systematically selected across the three zones in Oshogbo. In each building, a household head was surveyed. In all, a total of 6 BTS and 150 household heads form the sample size for this study.

Data collected were analysed using descriptive and inferential statistics such as frequency count, percentages, cross tabulation, Relative Effect Index (REI) and correlation. The instrument was structured using two different 5 point Likert scale rating. Very high – 5, High – 4, Medium – 3, Low–2 and Very low – 1 for environmental impact and Very often – 5, Often – 4, Rarely – 3, Occasionally – 2 and Never – 1 for health impact where "Medium and Rarely" are the midpoint of the respondents' responses which could also be termed as "Indifferent" (Agbabiaka, 2016).

# 4.1 Computation of REI values for the Environmental Effects Associated with the Location of BTS in the study area

Column 1: Environmental effects indicators

Column 2: Number of individual respondents rating each of the indicators with 5 (Very High)

Column 3: Number of individual respondents rating each of the indicators with 4 (High)

Column 4:Number of individual respondents rating each of the indicators with 3 (Medium)

Column 5: Number of individual respondents rating each of the indicators with 2 (Low)

Column 6: Number of individual respondents rating each of the indicators with 1 (Very Low)

Column 7: Addition of product of individual respondents rating a particular indicator and their respective weight values. For instance, SWV for "Noise" =  $(14\times5) + (87\times4) + (47\times3) + (2x2) + (0x1) = 563$ .

Column 8: Residents Knowledge Index equals summation of weight value (SWV) divided by additional of individual respondents rating each indicator. For instance, RII for "Noise" =  $563/(14+87+47+2+0) = \frac{563}{150} = 3.75$ 

Column 9: The deviation equals to mean of RII for all the 5 identified indicators subtracted from RII value for each indicator. Thus  $\frac{13.76}{5}$ = 2.75, Deviation (RII  $-\overline{RII}$ ) = (3.75 - 2.75) = 1.00

#### 5. Result and Discussion

This section discusses the result and discussion of the findings. The result centres on the measurement of the proximity of the BTS in different residential zones, BTS to the nearest residential building, BTS to the road, locational characteristic of BTS, socioeconomic, environmental and health effects of the BTS locations in the study area.

### 5.1 Proximity of Base Stations to Each Other in Different Residential Zones

The study revealed that base stations in the core area of Osogbo are located closer to each other than at the intermediate zone and farther to each other at the periphery. The closest two base stations at the core are at 19 meters to each other. The two closest base stations in the intermediate zone are at 1,043 meters to each other and the closest two base stations in the periphery are at 169 meters to each other. From the analysis, 12 telecommunication base stations serve 1,720.8ha of land in the core area. Eleven telecommunication base stations serve 2.909.4ha of land in the intermediate zone and 11 base stations serve the periphery (Table 1).

Table 1: Proximity of Base Stations to Each Other in Different Residential Zones

in Bilicient Residential Zones											
Zones	No. of	Land area	Minimum distance								
	BTS	(Ha)	in meters between								
			BTS								
Core	12	1,720.2	19								
Intermediate	11	2,909.4	1,043								
Periphery	11	Inestimable	169								

Source: Field Survey 2016

# 5.2 Proximity of Base Stations to the Nearest Residential Building

The study revealed that 76.5% of the base stations are located within 10 meters to the nearest residential building in the study area. In the core area 10 base stations are located within 10 meters to the nearest residential building, 2 base stations are

located between 11 and 20 meters of the nearest building. In the intermediate zone 7 base stations are located within 10 meters of the nearest building, 3 base stations are situated within 11 and 20 meters of the nearest building and 1 base station is located between 21 and 30 meters of the nearest building. In the periphery, 9 base stations are located within 10 meters to the nearest building (Table 2).

Table 2: Proximity of Base Stations to the Nearest Residential Building

	Within 10		11-20		21-30			
Zones	meters		M	leters	M	eters	Total	
	F	%	F	%	F	%	F	%
Core	10	29.4	2	5.9	0	0	12	35.3
Intermediate	7	20.6	3	8.8	1	2.9	11	32.4
Periphery	9	26.5	2	5.9	0	0	11	32.4
Total	26	76.5	7	20.6	1	2.9	34	100.0

Source: Field Survey, 2016

# 5.3 Proximity of Telecommunication Base Stations to Road

The result of the analysis revealed that 25% of the base stations in the core are located within 10 meters of the nearest road, 54.6% in the intermediate zone, and 45.5% in the periphery respectfully. 41.7% of the base stations in the core area are located between 21 and 30 meters to the nearest road network and 9.0% each of the base stations were located between 21 and 30 meters to the road in the intermediate and periphery. The study further revealed that 41.7% of the base stations in the core area were located between 11 and 20 meters to the nearest road network while 12.2% of the BTS were in the intermediate and 27.3% in the periphery. Also findings established that core, intermediate and periphery accounted for 16.6, 18.2 and 18.2% each of base station located above 30 meters to the nearest road (Table 3).

Table 3: Proximity of Telecommunication Base
Stations to Road

Stations to Itoua												
	Within					Above						
Zones	10 m		11	11-20m		21-30m		30m		Total		
•	F	%	F	%	F	%	F	%	F	%		
Core	3	25.0	5	41.7	2	16.7	2	16.6	12	100.0		
Intermediate	6	54.6	2	18.2	1	9.0	2	18.2	11	100.0		
Periphery	5	45.5	3	27.3	1	9	2	18.2	11	100.0		
Total	14	41.9	10	29.3	4	11.7	6	17.1	34	100.0		

Source: Field Survey, 2016

## 5.4 Location Characteristics of Base Stations in the Study Area

The research revealed that although network providers complied with most of the guidelines

given by the NCC, they did not comply strictly with few other guidelines like the provision of parking facilities and maintenance culture. Analysis from the study revealed that more than 70% of the base stations in the core area, 58%, respectively, in the intermediate and peripheral areas of the city, have no parking facilities, contrary to the standards expected to be observed in the base stations.

#### 5.5 Perceived Socioeconomic Effects

The result of the study revealed that the situation of telecommunication base stations in all the residential zones affects the sales of telecommunication materials like recharge card. For instance, the number of recharge card sellers in all residential zones has increased. General consensus from the residents is that land rent and cost have been affected by the situation of base station in their neighbourhoods. The effect is perceived to be highest in the periphery, moderate in the intermediate zones, and none-existence in the core area of Osogbo. Residents generally affirmed that location of base stations have brought about significant increase in property and rental values in the periphery and intermediate zones of the city. In addition to economic benefits other perceived benefits of location of the base station include better communication network, better access to the internet and the masts themselves forming important landmarks for the various neighbourhoods in the city.

Table 4: Perceived Socioeconomic Effects of Location of BTS in the Study Area

Eccution of D18 in the Study Tired												
	C	ore	Interr	nediate	Per	iphery	To	tal				
Zones	F	%	F	%	F	%	F	%				
SME (sales	75	50.0	50	33.3	25	16.7	150	100				
of call card)												
Land rent	35	23.3	52	34.7	63	42.0	150	100				
and cost												
Better	71	47.3	32	21.3	47	31.3	150	100				
communica-												
tion network												
Improved	69	46.0	22	14.7	59	39.3	150	100				
access to												
internet												
Land mark	33	22.0	45	30.0	72	48.0	150	100				
Total	283	37.7	201	26.8	266	35.47	750	100				
Source: Field Survey, 2016												

# 5.6 Perceived Environmental Effects Associated with the Location of BTS

The residents' awareness on the environmental impacts associated with the location of BTS were also examined using a five point Likert's scale rating to determine the Relative Effects Index (REI) in identifying the level of importance attached to the identified indicators. A total of 5 indicators were identified. To calculate the RII, the respondents were instructed to rate each environmental impact indicators using one of the five ratings:  $Very\ high-5$ , High-4, Medium-3, Low-2 and  $Very\ low-1$ . The summations of the weight value (SWV) for each of the indicators were obtained through the addition of the product of the response for each rating of the variable and their respective weight values. Mathematically, this is expressed thus:

SWV = 
$$\sum_{i=1}^{5} X_i Y_i$$
 .....eqn. (1)

Where: SWV is the summation of weight value,  $X_i$  is the respondents rating of particular indicator  $Y_i$  is the weight value assigned to each indicator. The Relative Effects Index (REI) for each indicator is arrived at by dividing the summation of weight value by the addition of the number of respondents to each of the five ratings. This is expressed mathematically as:

$$REI = \frac{SWV}{\sum_{i=1}^{5} P_i} \qquad equ. (2)$$

Where REI is the relative effects index, SWV and *Pi* are defined previously. The closer the REI of a particular indicator to 5 the higher is the level of importance attached to such indicator (Agbabiaka, 2016). The result is as presented in Table 5.

Table 5: Perceived Environmental Effects Associated with Base Transceiver Station in Osogbo

	Ratin	g &	weig	MD							
	VH	Н	M	L	VL		(RII-				
Indicators	(5)	(4)	(3)	(2)	(1)	SWV	RII	$\overline{RII}$ )	Rank		
Noise	70	348	141	4	-	563	3.75	1.00	1 <sup>st</sup>		
pollution											
Vibrations	60	304	162	16	-	542	3.61	0.86	$2^{nd}$		
									,		
Radiation	31	64	222	80	14	410	2.73	-0.02	$3^{\rm rd}$		
pollution											
Air	40	96	102	82	43	363	2.42	-0.33	$4^{\rm rd}$		
pollution											
Disruption	10	8	6	36	126	186	1.24	-1 .5 1	$5^{th}$		
of property											
Total	211	820	633	218	183	2064	13.75	$\overline{RII}$ =	= 2.75		

Source: Field Survey, 2016

Findings in Table 5 established that the respondents express their dissatisfaction towards 2 out of the 5 environmental effects indicators considered as negative effects associated to the location of BTS within residential areas. The first indicator

considered as negative effect was Noise emanating from the BTS generating plant with (RII = 3.75 and)MD= 1.00), followed by Vibration with (RII= 3.61 and MD=0.86). Residents did not consider radiation pollution, air pollution, and disruption of local activities as effects emanating from the location of the BTS in their areas. This could be associated to the fact that residents believe that the location of the BTS closer to them gives them a wider coverage and access to the network for calls and internet services, but rather have not really carried out thorough research on the air quality and extent of radiation of electromagnetic field within their area that could have resulted from the location of BTS. Findings from this study which revealed that vibration and noise pollution are the most perceived environmental effect associated with BTS location, corroborated earlier study of Abdel et al (2007) in which he inferred that vibration and pollution of environment due to various activities of generators and mast installations are felt by the residents living within 1 to 5km of the BTS locations. The study also revealed that the mean RII for all the 5 identified environmental impacts (indicators) denoted by  $\overline{RII}$ was 2.75, while the variance in RII was 0.8282, with a standard deviation of 0.9101 and the coefficient of variation in the RII was 35.41% which connotes a spread of respondents opinion about the mean on the negative impact associated with the location of BTS.

Average (Mean) = 
$$\overline{RII} = \frac{\sum RKI}{N} = \frac{13.75}{5} = 2.75$$
;  
Variance =  $\frac{\sum (RII - \overline{RII}) 2}{N} = \frac{4.141}{5} = 0.8282$   
Standard deviation =  $\sqrt{\frac{\sum (RII - \overline{RII}) 2}{N}}$   
=  $\sqrt{0.972} = 0.9101$   
Coefficient of variation =  $(\frac{0.9101}{RII} \times 100)\%$   
=  $(\frac{0.9101}{2.57} \times 100)\% = 35.41\%$ 

#### 5.7 Perceived Health Effects of BTS in Osogbo

Residents' awareness on the health effects of the location of BTS in the study area were examined using a five point Likert's scale rating to determine the Relative Effects Index (REI) in identifying the level of importance attached to the identified indicators. For this study, a total of 6 ailments were identified. To calculate the RII, the respondents were instructed to rate the occurrence of each ailment to them using one of the five ratings: *Very* 

often -5, Often -4, Rarely -3, Occasionally -2 and Never -1. The summations of the weight value (SWV) for each of the indicators were obtained through the addition of the product of the response for each rating of the variable and their respective weight values. The result is presented in Table 6.

The result in Table 6 established that the respondents' identified occurrence of two out of the six ailments as being predominant in the vicinity where the BTS are located. The first ailment considered to be most frequent was Headache with RII value of 3.28 and MD of 1.48, followed by Sleeplessness with RII= 2.15 and MD= 0.71 which indicates that headache and sleeplessness are the common ailments in areas where BTS were located which might be as a result of the exposure of the residents to electromagnetic field emanating from the transmission process of the BTS. However, residents did not consider dizziness, leukaemia, memory loss and lung diseases as predominant ailments in their area.

Findings as presented in Table 6 also revealed statistical correlation between proximity to the BTS and headache (R = 0.168\*\* and p = 0.000), indicating that the more the residents are closer to the BTS the higher the level of headache and the farther they are from the BTS the lower the level of headache caused. Findings further established a statistical correlation between proximity to BTS and the causes sleeplessness (R= 0.063\*\* and p= 0.000), indicating that the distance kept away from the BTS reduces the risk of having sleeplessness. The implication of the findings is that BTS should not be located in close proximity to residential buildings as it is majorly associated with headache and sleeplessness among the residents in the three residential zones in the study area. The remaining ailments and proximity to BTS does not show statistical correlation.

Therefore, the predominant ailment due to proximity to the BTS are headache and sleeplessness. This finding is corroborated by Akinyemi *et al.* (2014) whose study established that most of the symptoms such as nausea, headache, dizziness, irritability discomfort, nervousness, depressor, sleep disturbance memory loss and lowering of libido were statically significant in the inhabitants living near the BTS antennae, that is, less than 300 meter radius.

Rating and weight value MD Distance N(1) SWV VO(5) P Indicators OF(4) R(3) O(2)RII  $(RII-\overline{RII})$ Rank Correlation 0.000 Headache 42. 492 3.28 1 st 0.168\*\* 60 204 180 6 1.48  $2^{nd}$ Sleeplessness 60 20 165 106 25 376 2.51 0.71 0.063\*\* 0.000 $3^{\text{rd}}$ Dizziness 12 87 72 80 251 1.70 -0.1 -0.015 0.859 4rd Leukemia 4 14 136 172 1.15 -0.650.054 0.510 18 Memory loss 8 32 132 172 1.15 -0.654<sup>rd</sup> -0.2590.001  $5^{\text{th}}$ Lung Diseases 147 153 -0.780.099 0.229 6 1.02 450 Total 120 248 272 526 1616 10.81  $\overline{RII} = 1.80$ \*\*Sig. at 0.01

Table 6: Relative Effects Index of Ailment Associated with Location of Base Station

Source: Field Survey, 2016

#### 6. Conclusion and Recommendations

#### 6.1 Conclusion

The impacts of BTS on residents living within 300 meters radius was analysed in this study. The study showed the spatial distribution and location characteristics of BTS across the three residential zones in Osogbo. The study also examined the socioeconomic, health and environmental impacts associated with the location of BTS. The study established that telecommunication has both positive and negative impacts on both the environment and the residents. Although the negative impacts affect the health of the residents in terms of causing headache and sleep disorder, while the positive impacts have social and economic benefits to the residents in terms of access to uninterrupted calls and data network as well as increase in land value. Hence the need to put in place the mitigation measures for the negative effects of the BTS on residents in the study area should be emphasized.

### 6.2 Recommendations

(a) To reduce the environmental impact of base station on the environment, mast collocation should be encouraged by network providers. The multinetwork Base Stations that will be jointly owned by three to four telecommunication network providers

should be constructed so as to reduce the number of base stations and negative effects on residents.

- (b) The use of better equipment and material in the construction of telecommunication base stations such as sound proof materials and radiation blockage devices should be encouraged. This will help in mitigating the adverse environmental impact.
- (c) Better maintenance culture should be adopted to reduce the rate at which these base stations deteriorate and go into obsolescence. Stricter policy and guidelines should also be enforced on the network providers to enable them adhere strictly to the laid down standards and guidelines.
- (d) Telecommunication planning should be incorporated into development plans in all planning agencies to serve as guide for the erection of telecommunication equipment.
- (e) The physical development control agencies in Osun State should be adequately funded, staffed and equipped to face the challenges associated with all illegal mast construction so as to promote a virile sustainable urban environment.
- (f) Above all, there should be vigorous public awareness campaign to sensitize the citizenry on the negative effects of residing near the base transmission stations.

#### References

Abdel- Rassoul, G; Abou El- Batanouny, M; Salem, E. (2007). Neuro Behavioural Effects among Inhabitants around Mobile Phone Base Stations. *Neurotoxicology*. DOI: 10.1016/j.neuro.2006.07. 012.

Adekunle A., Ibe K.E., Kpanaki M.E., Umanah I.I., Nwafor C.O., Essang N., (2015). Evaluating the Effect of Radiation from Cell Towers and High Tension Power Lines Inhabitants of Building in Ota, Ogun state, *Journal of Communication and Applied Science*, 3(1): 1-21

Agbabiaka, H. I. (2016). Physical Planning Implication of Eyo Festival in Lagos Island, Nigeria. *Cogent Social*  Sciences (Taylor & Francis), 2(1):1257461. https://doi.org/10.1080/23311886.2016.1257461

Akindele, O., and Adeniji, M. (2014). Location Adequacy of Telecommunication Masts and Residents Liveability in Osogbo, Nigeria. *International Journal of Research in Applied, Natural and Social Sciences, 2*(11): 7-16. Retrieved January 10, 2016, from www.impact journals.us

Akintonwa, A., Busari, A. A., Awodele, O., & Olayemi, S. O. (2009). The Hazards of Non-Ionizing Radiation of Telecommunication Mast in an Urban Area of Lagos,

- Nigeria. African Journal of Biomedical Research, 12(1), 31-35.
- Akinyemi L.A., Makanjuola N.T., Shoewu O., Edeko F.O. (2014). Comparative Analysis of BTS and Power Transmission Lines Effect on the Human Body in the Lagos Environ, African Journal of Computing and ICT, 7(2): 33-42
- Alade, W., Bishi, H., & Olajide, O. (2011). Locational Analysis of Telecommunications
- Infrastructure in Residential Neigbourhoods of Lagos Metropolis, in Schrenk, M., Popovich, V. V. and Zeile,
  P. (eds) Change for Stability: Lifecycles of Cities and Regions, Proceedings of Real Corp 2011 Tagungsband,
  pp 543 550
- Ayinmode, B. O., & Farai, I. P. (2014). Evaluation of GSM Radiation Power Density in Three Major Cities in Nigeria. World Academy of Science, Engineering and Technology, International Journal of Environmental, Chemical, Ecological, Geological and Geophysical Engineering, 8(10), 740-743.
- Bell, D., (1979). The social framework of the information society, in the computer age: A 20-year view, Dertoozos, M. L. and Moses, J., Eds. MIT Press, Cambridge, pp. 500–549.
- Bello, M. O. (2010). Effects of the Location of GSM Base Stations on Satisfaction of Occupiers and Rental Value of Proximate Residential Property in Akure, Nigeria. *Journal of Computer and Information Science*, 3(4): 159-170
- Khurana, V. G., Teo, C., Kundi, M., et al. (2009). Cell Phones and Brain Tumors: A Review Including the Long-term Epidemiologic Data. Surg. Neurol. 72: 205-214
- Nigeria Cmmunication Commission [NCC]. (2014). Industry information. Retrieved from http://www.ncc.gov.ng/index.php?option=com\_content&view=category&id=65&Itemid=67
- Nigerian Telecommunications (Services) Sector Report (2016). National Bureau of Statistic <a href="www.nagerianstat.gov.ng">www.nagerianstat.gov.ng</a>
- Oni, O. M., Amuda, D. B., Gilbert, C. E., Aseweje, I. F., & Akinola, F. A. A. (2011). "A Pilot Study of the Effect of GSM Radiofrequency Radiation on Blood Parameters", *IJRRAS*, 9 (3): 464 - 466

- Olukolajo Michael Ayodele, Ezeokoli Nnaemeka Bethel and Ogungbenro Matthew Taiwo (2013). Locational Effect of GSM Mast on Neighbouring Residential Properties' Rental Values in Akure, Nigeria. Academic Journal of Interdisciplinary Studies, 2(3), 147 155.
- Oluwajobi, A. O., Falusi, O. A., and Oyedum, O. D., (2014). Estimation of the number of 900MHz GSM Antennae and the Field Intensities of their Ray Emissions in Minna Metropolis, Nigeria. *International Journal of Applied Biological Research*, 6(2):56 62
- Onifade, A.O., Ikotun, S. A., Opejin A.O., and Ibraheem, B. A. (2011). Health Implication of Mast Location in Urban Area. A Case Study of Egbeda L.G.A. of Oyo State: A Planning Seminar Submitted to Department of Urban and Regional Planning, Obafemi Awolowo University Ile-Ife, Osun State
- Felix, O. K., Gabriel, A. U., & Emmanuel, A. C. (2014). Investigation and Analysis on
- Electromagnetic Radiation from Cellular Base Station Transmitters and the Implications to Human Body. *Journal of Environment and Ecology*, 5(1), 46-60.
- Santini, R., P. Santini, P. Le Ruz, J.M. Danze, and M. Seigne. (2003). Study of the Health of People Living in the Vicinity of Mobile Phone Base Stations: Influences of Distance and Sex. *Pathol. Biol.* 50:369-373.
- Sewo, A.O. (2006). "Appraisal of the Application of Geographical Information System (GIS) in the Location of Telecommunication Mast in Ibadan Oyo State. An Unpublished M.Sc. Urban and Regional Planning (URP) Dissertation, Department of Urban and Regional Planning, University of Ibadan, Ibadan.
- Shahbazi-Gahrouei, Karbalae, Moradi, Baradaran-Ghahfarokhi (2014). "Health Effects of Living Near Mobile Phone Base Transceiver Station (BTS) Antennae: A Report from Isfahan, Iran" *Electromagn Biol Med.* 33(3): 206-210. doi:10.3109/15368378.2013.801352.
- Victor, U.J., Norbert, N., Silas S., Abraham, A., and Patrick U. (2012). "Assessment of Radio-Frequency Radiation Exposure Level from Selected Mobile Base Stations (MBS) in Lokoja, Kogi State, Nigeria.



### Psychosocial Well-being of the Elderly in Ibadan Metropolis

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#### **Abstract**

This study investigated determinants of the elderly in Ibadan metropolis. Wellbeing of elderly has become essential in order to improve the preparation for old age among Nigerians. Purposive sampling technique was used to select a total of four hundred and ninety elderly people, comprising 463 (70%) of 662 members of National Union of Pensioners, Agodi Branch and 27 (100%) of those residing in Old Peoples' Homes in Ibadan Metropolis. A set of pre-tested questionnaire was used to collect data from respondents. Information was obtained on the respondents' socio-economic characteristics; type of support enjoyed (emotional, financial, companionship, or access to information), and perceived level of spiritual wellbeing. In-depth interviews were also conducted on a cross-section of care-givers and people with aged relations in the study area. Descriptive and inferential statistics were used in analysing quantitative data obtained for the study, while qualitative data were content analysed. Financial support was found to be the most prominent form of support enjoyed by majority of the respondents and companionship, especially, of biological children, was the least prominent form of support enjoyed by the elderly in the study area. Higher proportion of females were found to enjoy access to information and financial support while higher proportion of males enjoyed companionship and emotional support. Higher proportion of polygamists were found to enjoy access to information, companionship and emotional supports while higher proportion of monogamists enjoyed financial support. The study identified the fact that the traditional importance of family in providing support is perceived to be fast dwindling due to changes in cultural practices in the city. Major implications of the study's findings is the need to evolve strategies to strengthen accessibility of the elderly to adequate support that will enhance their spiritual well-being, as the cultural support system is fast crumbling in the city.

#### Keywords

Elderly, psychosocial wellbeing, financial support, emotional support, companionship

#### Article History

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### 1. Introduction

In our society today, there exists a particular group of individuals, who has come into the world as babies, had spent their entire lifetime in service to humanity, had retired from active service and are only waiting to take a final exit from the world into eternity (Bigner, 2012). This group of individuals is in a stage of life late adulthood, a stage in life in which people are known as the elderly or referred to as the aged. This period in the life span is characterized by declined that occur in association with advance ageing in almost all aspects of development (Bigner, 2012 & Santrock, 2014). Late

adulthood or old age commences from the age of 65 and stretches to the period of near death or process of dying. It is a period in life with unique challenges/problems (National Ageing Institute, 2013). Many societies all over the world often maintain a negative perception of older adults. Youthfulness is being promoted that many people do not look forward to old or grow old. Many people view old age as an unfortunate consequence of human life and often spend a lot of money in a bid to reverse the ageing process. Old people are often seen trying to dress up as the youth and do

sometimes get offended whenever they are referred to as being old .Many young people, especially in Southwestern Nigeria, sometimes make jest of the old, often referring to them as witches /wizards (Ola & Adeyemi, 2012).

Social support services refers to either functional or qualitative dimension of the social network and ties. It is a system formed by formal and informal relationships through which an individual receives information and emotional, effective, and material help, and established positive social interaction (Hsu, 2012). Social support contributes to perseverance enhancement of the satisfaction (Bisconti & Bergeman, 1999; Shaw & Janevic, 2004; Hsu 2012). Older adults need emotional, financial, and socio-cultural support in varying degrees within the society, and such level of social engagement within the context of the elders predicts satisfaction with life (Kaufman, 2010). The elderly social support may represent a main source of personal care and well-being and the aspects already emphasized in the general context of social support become more critical and amplified by the various problems connected to an ageing population.

The positive influence of social support on the psychological and social wellbeing of the elderly is well acknowledged; in particular social support from family and community members is positively associated with a higher degree of well-being and less distress. That is not opining that most elderly have the access to these various social support system. As such, social vulnerability, which is a concept related to a low social support, is indeed higher among elders with individual frailty and little or no social support system, and it increases with age. Greater social vulnerability is associated with low level of wellbeing in older adults. Seeking social support emerged as an adaptive way of coping and is positively associated with recovery indicators. In recent findings, social support have tend to be a frontier to other associative studies such as the emotional support; Information access by the elderly; financial support; companionship and activities of daily living as mediators for positive psychological wellbeing and social wellbeing (Shaw & Janevic, 2004).

Social relationships from community participation and community engagement also play an important role in older adults' maintenance of psychological and social well-being by acting as buffers for stressful life experiences as the individual reaches the elderly stage. Social relationships have been found to reduce morbidity (Wallston, Alagna, Devellis, & Devellis, 1983) mortality (Robbins, & Metzner, 1982; Orth-Gomer & Johnson, 1987; House, Landis, & Umberson, 1988; House, Sugisawa, Liang, & Liu, 1994). Because of the increased rates of disease and disability, individuals' social relationships attain even more importance in advanced age. Environment support ties, and assistance by others become critical factors in the maintenance of individuals' independence and wellbeing.

Many decades ago, especially in developing countries, the cultures operated the extended family form, with two or more generations living together in a household the care and support for the elderly was at the utmost (Bigner, 2012). In Nigerian society, majority of the elderly are solely taken care of within the family since one of the traditional roles of the family involves taking care of old parents as well as other members. Walker (2002) points out that in most industrial and pre-industrial societies, the family has been the main providers of care to the elderly relatives. Sijuwade, (2008) also maintains that both in developed and developing countries, the elderly as well as those who take care of them prefer that they should be taken care of within the family. However, in today's world, with the fast technological advancement and awareness in the world, many people have become too busy to dedicate time towards the care of the elderly. In advanced countries, institutions are set up to take care of the elderly, but Nigerian society lacks the awareness of setting up institutions with social benefits capable of taking care of the elderly. The elderly therefore remains the sole responsibility of his/her family and may be faced with unique challenges and problems, prominent among of which are problems of being abused and being neglected.

The Nigeria social development policy assigns age of at least 65 years and above to the elderly, but in medical circles, persons aged 65 years and above would be regarded as potential 'geriatric patients' (Nelson 1980). Life expectancy in Nigeria is currently put at 60 years and mandatory age of retirement is 60 years. The United Nations would put age 60 as base line for old age and this age is the