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Laptop and Android Mobile Phone Use as a Correlate to Infertility among Married Men in Nigeria: A Sociological Perspective

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Key words: Infertility, men fertility, laptop, mobile phone and electromagnetic radiation

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Abstract: The sudden and accepted revolution in the areas of science and technology comes with a lot of positive dividend. However, it is very important to note that no matter how good the rapid development in science and technology in order to better the lives of mankind, it also come with its challenges or problems. For instance, the use of laptop and android mobile phones among other problems is the cause of infertility among men. The heat that seeps out of the laptop is very inimical to men. And also, when both (laptop and android mobile phone) are connected to internet, it makes the condition more harmful to men that interact with them on daily basis. Major findings revealed that, most of the respondents 63.2% fall within the age bracket of 30-41 years, 85.6% were still together with their spouses, 31.8% were senior Administrative officers in the institution, 60.0% of the respondents had either B.Sc or HND equivalent and 83.1% were permanent staff of the institution. Also, 78.3% have been having children, 41.9% have 3-4 children, 70.6% have desired age gap between their children, 50.6% said yes, the age gap was maintained, 43.1% bears children between 1-5 years. A good number of the respondents 68.8% have both laptop and mobile phone, distribution of usage can be found in the tables 5-6 below. Most of the respondents 48.1, 36.3 and 19.4% said mobile phone is the only facility used all time at the workplace, home and other places, respectively. Not less than 54.0% said yes, these facilities are harmful to human beings because 40.6% affirmed they feel heat, 57.5% said yes, they have heard of electromagnetic radiation before, 46.9% in a Likert scale table agree they have knowledge of electromagnetic radiation, 33.8% of the respondents strongly agree that the electromagnetic radiation from internet connected to laptop weakens male's sperm, 40.0% agree that the connectivity of mobile

phone and laptop to internet causes electromagnetic radiation. The study concluded that no doubt, the use of laptop and mobile phone whether connected to internet or not are capable of affecting the fertility of men.

INTRODUCTION

In the contemporary world, mankind does everything possible striving to become increasingly proficient. The nature of the type of modern-day we live keeps us on our toes as a driving forces to be on the same page with the vast technological innovations which include the internet, social media/networks, e-mail, laptop/computer and most lately, the Smartphone. To be factual, the Smartphone/android phone have become a vital part of human begins lives and as the social requirements for optimal efficiency increase, so, also do the demand for most technological capabilities most especially the possession and use of the Smart/android phones.

The Laptop Computer is an active heat generating device that exposes the scrotum to the dissipated high internal operating temperature[1]. A working LC in a laptop position causes significant scrotal temperature elevation by a direct heating effect of the LC and also by the dependent sitting position with closely approximated thighs, that is necessary to balance a LC on the lap. Balancing laptop computers on the lap has been found to raise the scrotum's temperature to around a 5° Fahrenheit increase (or about 2.7°C) and it has been shown that sperm concentration and motility dropped by 40% when median daytime scrotal temperature rose by 1 to 2° Fahrenheit (or 1°C). Electromagnetic waves from cell phones the frequency of incoming waves and subsequent energy of transmitted waves by the cell phone device can have an effect on not only the general body but also more specifically on the male reproductive system[2]. This EMF has a detrimental impact on the motility and characteristics of spermatozoa, leading to a significant decrease in the percentage of forward progressive motile sperm. Also, there is a substantial increase in the rate of mitochondrial ROS production (Reactive oxygen species and free radicals that can alter the DNA and genetic composition of cells). It was concluded that RF-EMW emitted from cell phones may increase oxidative stress in human spermatozoa leading to decreased motility and viability characteristics[2].

And then there is that other wonderful gadget, the cell phone. This time the effects are far more intense and the testing is more conclusive. Men who carry their cell phones in their pocket have a sperm count of almost 15% less than those who do not use cell phones or who carry them differently. Motility is affected-the ability of the sperm to swim-as well as sperm production. Long-term exposure to the electromagnetic irradiation emitted by cell phones cause deterioration in male sperm counts. Although, the sperm counts of men using cell phones has not dropped to the infertility level, the danger is still present. In 2005 an Australian study showed that men who carried a cell in their hip pocket or on their belt had an average sperm count of around 65 million per milliliter of semen-compared to around 75 million for other men. Infertility, according to the World Health Organization is a sperm count of 20 million per milliliter of semen. Using a laptop the way its name suggests on your lap has long sparked concerns about male fertility due to crotch overheating. Even now, while many laptops run cooler than their predecessors, men planning to father children still need to be mindful of the risks, some experts say. "Human males have testicles outside our bodies for a reason," says Dr Jesse N. Mills, an associate clinical professor of urology and director of The Men's Clinic at University of California Los Angeles, (UCLA). "Our testicles like to be at least two degrees cooler than the rest of our body and anything that affects their temperature can affect fertility." While the evidence is mixed, some research has linked the Electromagnetic Frequencies (EMF) produced by cellular devices both laptops and mobile phones to potential reproductive challenges in men and women. This study will examine the means of cell phone interference on normal bodily functions and will take an in depth look at their relations with male reproductive health.

Further studies showed that for heavy users of cell phones, sperm counts were 30% lower than men who did not use a cell phone. Therefore, exposure to cell phones may be correlated with the significant decrease of melatonin in the body, making spermatozoa more susceptible to reactive oxygen species attack. Thus, the effect of cell phone EMW on the generation of oxidative stress cannot be ignored. The consequence of such ignorance may be dismal in regards to male infertility and possible cancer in the future. That is why most mobile phones are sold with an earpiece. Study found that chronic exposure of male Wistar rats to mobile phone radio-frequencies was associated to decrease in protein kinase C activity and total sperm count along with increased apoptosis and could be related to overproduction of ROS[3]. Kesari *et al*.[3], found that chronic exposure of male Wistar rats to mobile phone radio-frequencies was associated with:

- Decreased glutathione per oxidise and superoxide dismutase
- Increased in catalyse and malondialdehyde
- Decreased hailstone kinase
- Decreased micronuclei
- Changed sperm cell cycle[3]

It is very important to note that the exposure of the rat to electromagnetic radiation from conventional cellular phone was associated with increase in the diameter of the somniferous tubules with a disorganized somniferous tubule sperm cycle interruption and serum and testicular tissue conjugated diene, lipid hydro peroxide and catalyse activities increased 3-fold, whereas the total serum and testicular tissue glutathione and glutathione peroxidise levels decreased 3–5-fold in the electromagnetism-exposed animals[4]. The vitamins C and E had a protective role of preventing these detrimental effects. It was reported that chronic exposure of Wistar rats to RF EMFs emitted from a mobile phone was associated with a decrease in the level of testosterone and an increase in caspase-3 activity and distortions in sperm head and mid-piece of the sperm mitochondrial sheath. These changes could be caused by overproduction of ROS[5]. In the same vein, it was found that chronic exposure of male Wistar rats to RF electromagnetic radiation of cell phone leads to defective testicular function in the form of degeneration of the germinal epithelial cells that is associated with increased malondialdehyde (MDA) and decreased SOD and decreased gonad tropic hormonal profile (Follicle Stimulating Hormone (FSH), LH and testosterone)[6].

Furthermore, Wdowiak *et al*.[7] it was reported that there was a decrease in the percentage of sperms in vital progressing motility in the semen was correlated with the frequency of using mobile phones. Also, discovered was the fact that the usage of cell phones was associated with a decrease in sperm count, motility, viability and normal morphology and these changes in sperm parameters were dependent on the duration of daily exposure to cell phones and independent of the initial semen quality[8]. They found that RF electromagnetic waves emitted from cell phones showed a decreased in sperm motility and viability, increased in ROS level, decreased in TAC of semen (ROS-TAC score)[8].

According to Gutschi *et al*.[9], it was found that cell phone usage by male persons was associated with increased abnormal sperm morphology and increased serum free testosterone and decreased LH levels with no changes in FSH and prolactin. It is noteworthy that the use of mobile phone for >4 h daily was associated with increased sperm DNA fragmentation[10]. In the study conducted by Yildirim *et al*.[11], they found that exposure to RF-electromagnetic radiation of mobile phone and wireless internet was associated with decreased total motile sperm count, progressively motile sperm. Finally, research showed that cell phone use may negatively affect sperm quality in men by decreasing the semen volume, sperm concentration or sperm count, thus impairing male fertility[12].

MATERIALS AND METHODS

Study population and design: In this study, the population was married men who are staff of Federal University Oye-Ekiti. They comprised of both teaching and non-teaching staff of the institution. The topic was approved by the department of Sociology in the institution where the study was carried out. It was an exploratory designed study for people who cannot do without interacting with either of the facilities or both each day at home or workplace and any other place. The laptop basically is what they use in discharging their specialized duties in the workplace and even sometimes at home if they have backlog that need urgent attention, they take it home. This makes the study to be very much in place. Statistically, the standard deviation and mean of the age of the population are 5.25 and 30.12, respectively.

Sample size determination: The trend of infertility base on the its prevalence globally especially in an emerging economy nation like Nigeria[2]. The sample was calculated purposively by using the 51.0% of the total population of married men (950) at Federal University Oye-Ekiti, Nigeria. Therefore, the sample size is 480 which are the respondents used for this study.

Questionnaire: A well and fully complete structured questionnaire was designed to obtain quantitative data for this study. The validity and reliability of the instrument was tested using Cronbatch's alpha which resulted in 91.0% valid and reliable to attain the set objectives for this research. To ascertain this, a pilot survey was done in a different institution by administering the instrument on 50 randomly selected married men. The questionnaire was designed to test univariate, bi-varate and multi-variate variables using likert scale questions in order to achieve some objectives too. A total of 10 field assistants were recruited and trained to administer the questionnaires to the appropriate sample size.

Statistical analysis: The IBM SPSS Version 22 was used to analysed the raw data from the field. The raw data was sorted, cleaned and label for entry into the variable view sheet after defining all the variables on the variable view sheet. Descriptive statistics were implored to analysis the quantitative data and the results were presented using frequency, percentage and tables. Also, the results of some variables were presented in different charts. Relationship between variables were tested or measured using Chisquare with the $p = 0.05$.

Research design: The exploratory study made use of married men at Federal University Oye-Ekiti, Nigeria.

Description of setting and population

Participants: In all, a total of 480 respondents were

selected for this study using random sampling technique. A structured questionnaire was designed and administers to elicit quantitative information from the respondents.

Measurements

Ethical consideration and procedure: Ethical approval for this study was obtained from the Research and Ethics committee of the Department of Sociology at Federal University Oye-Ekiti, Nigeria. Every individual respondent was briefed on what the research was all about. The consent of the respondents was sought from and the semi-structured questionnaires were distributed to them in their respective offices during working hours but to be filled at the comfort of their homes or when less busy in the office without disrupting the working activities. They were given the freedom to submit the filled questionnaires the following day. All respondents were assured of anonymity and confidentiality of their information and were promised that the information would be used purely for research purposes. In all, 495 questionnaires were distributed to only male staff across the nine functioning faculties. That is, 55 questionnaires for each faculty but only 480 questionnaires were duly completed for imputation. This constituted 97.0% of the total questionnaires distributed.

Analysis: The quantitative data collected for this study was analysed via. IBM SPSS Version 24 using both inferential and descriptive statistical methods. The socio-demographic characteristics of the respondents were analysed via. descriptive statistics such as percentages, frequencies, mean and standard deviation.

RESULTS

Demographic characteristics of the respondents: Demographically, majority of the respondents 63.2% fall within the age bracket of 30-41 years with mean of 30.09 and standard Deviation of 5.45, 73.8% were Yoruba speaking people and were Christians, 85.6% were still together with their spouses while only 1.3% were widowed, 31.8% were senior Administrative officers in the institution, 35.6% have their offices located in either a faculty or departments, 60.0% of the respondents had either B.Sc or HND equivalent and 83.1% were permanent staff of the institution.

Child bearing history: From Table 1, most of the respondents 78.3% said yes, they have been bearing children while 1.1% of the respondents did not respond to this question.

In respect to number of children respondents have, 41.9% of the respondents have between 3-4 children while only 2.5% of the respondents have above 7 children (Table 2).

Table 1: If respondent has been having children?

Option	Frequency	Percentage
Yes	376	78.3
No	99	20.6
No response	05	1.1
Total	480	100.0

Table 2: Respondent number of children

No. of children	Frequency	Percentage
1-2	177	36.9
3-4	201	41.9
5-6	18	3.8
7 and above	12	2.5
Not yet	72	15.0
Total	480	100.0

Table 3: If respondent has a desired age gap among the children?

Option	Frequency	Percentage
Yes	339	70.6
No	90	18.8
Not sure	52	10.6
Total	480	100.0

Table 4: Respondent's total years of child bearing

Option (Years)	Frequency	Percentage
1-5	207	43.1
6-10	165	34.4
11-15	21	4.4
16-20	16	3.3
Cannot remember	71	16.9
Total	480	100.0

Table 3 considers whether respondents have a desired age gap in between each child. Majority of the respondents 70.6% said yes while only 10.6% maintained not sure.

Figure 1 revealed that 50.6% of the respondents said yes that the gap between their children was maintained, 20.6% said no while 15.6% gave no responses to the question and 13.1% said they do not know.

For number of years spent for child bearing. A good number of the respondents 43.1% spent between 1-5 years while only 3.3% of the respondents spent between 16-20 years to bear children (Table 4). It is very likely those who spent longer years bearing children were as a result of delay in bearing child which among others things may be caused by improper use and handling of laptop and mobile phone.

Laptop and mobile phone use: Table 5 displayed the statistics of the use of each of each of the facilities by the respondents. A good number of the respondents 68.8% have both laptop and mobile phone but 9.4% use the laptop, 8.8% use the mobile phone, while 17.5% have iPad but 6.9% of the respondents use it also, 23.1% have Desktop computer but 7.5% use it, 67.5% have Android mobile phone but 8.8% use it.

From Table 6, it can be deduced that 60.6% of the respondents use their mobile phone all the time, 21.3% use laptop very often while only 8.1% use I-pad and

Table 5: Respondent's use of laptop and mobile phone

	ICT facilities owned		ICT facilities used	
ICT facility	Frequency	Percentage	Frequency	Percentage
Laptop	110	68.8	15	9.4
Mobile Phone	110	68.8	14	8.8
I-pad	28	17.5	11	6.9
Desktop Computer	37	23.1	12	7.5
Android Mobile phone	108	67.5	14	8.8

Table 6: How frequent respondents use each of the ICT facility

	ICT use all the time		ICT Use very often		ICT Use often		ICT Use once a while	
ICT facilities	F	%	F	%	F	%	F	%
Laptop	68	42.5	34	21.3	11	6.9	23	14.4
Mobile phone(GSM)	97	60.6	28	17.5	10	6.3	02	1.3
I-pad	14	8.8	13	8.1	06	3.8	24	14.4
Desktop Computer	18	11.3	13	8.1	10	6.3	26	14.4
Android Mobile Phone	91	56.9	28	17.5	10	6.3	04	2.5

Table 7: Usage of ICT facility in the following places

	Workplace						Home						Other places					
	All Time		Very Often		Often		All Time		Very Often		Often		All time		Very often		Often	
ICT facilities	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Laptop	59	36.9	32	20.0	27	16.9	19	11.9	38	23.8	30	18.8	02	1.3	17	10.6	37	23.1
Mobile phone	77	48.1	20	12.5	17	10.6	58	36.3	19	11.9	12	7.5	31	19.4	10	6.3	15	9.4
I-pad	17	10.6	13	8.1	12	7.50	04	2.5	07	4.4	12	7.5	02	1.3	04	2.5	11	6.9
Desktop	19	11.9	10	6.3	12	7.50	06	3.80	09	5.6	16	8.8	02	1.3	08	5.0	14	8.8
Android mobile phone	72	45	20	12.5	15	33.1	39	24.4	14	8.8	17	10.6	31	19.4	06	3.8	17	10.6

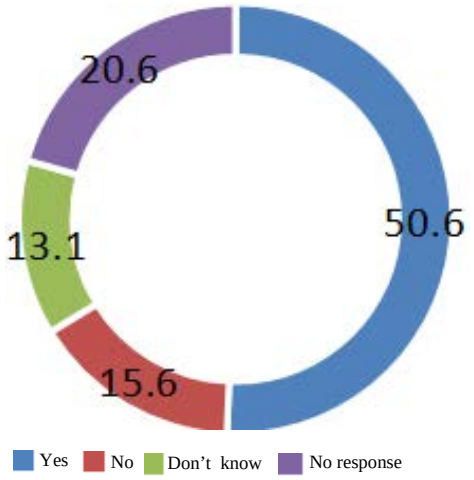

Fig. 1: Was the gap between your children maintained?

desktop computer a piece, 6.9% of the respondents use laptop often while only 3.8% use it often too and 14.4% of the respondents use laptop, I-pad and desktop computer once a while. To corroborate the above result, EGW's Science Guide found out that:

Men who talked on the phone for more than an hour a day had 17% fewer highly motile sperm than men who talked <15 min a day[13]. Table 7 measures how familiar the respondents are with the facilities in terms of usage in different places which could make them liable to be infertile. In the workplace, a large of the respondents 48.1% use mobile phone all time, 20.0% use laptop very often and 33.1% use Android mobile phone often. The situation at home showed that, 36.3% use mobile phone all time, 23.8% use laptop very often while 18.8% use laptop often. And finally, the use of the facilities indicated that 19.4% use mobile phone all time, 10.6% use laptop very often and 23.1% of the respondents use laptop often.

On where the respondents keep their device whether in use or not, 64.4% of the respondents keep their laptop on table/chair, 62.5 and 25.0% of the respondents keep their mobile phone and I-Pad in their hands, respectively, 34.4% keep their desk top on table/chair while 58.1% of the respondents keep their Android mobile phone in their hands (Table 8). The above shows that most people in Nigeria are aware of the danger that encumbers improper keep of these facilities. The above data showed that there few people that are still vulnerable to be infertile because of improper or careless keep of these facilities. For instance, 19.7% of the respondents still keep laptop on their laps, 13.8% and 14.4% keep mobile phone and Android mobile phones in their pocket. Those in this category are predisposed to infertility. EWG's Science Guide noted that:

Men who carried a phone in a hip pocket or on the belt had 11% fewer mobile sperm than men who kept a phone elsewhere on the body[14].

Men who carried a cell phone on the belt and used it intensively during a five-day test period had a 19% drop in highly motile sperm from their previous levels[15].

Table 8: Where do you keep/place your ICT facility when using them?

	Lap		Table/chair		Hand		Purse/Bag		Pocket	
Option	F	%	F	%	F	%	F	%	F	%
Laptop	99	19.7	309	64.4	27	5.7	03	0.6	-	-
Mobile Phone(GSM)	12	2.5	09	1.9	300	62.5	0	0.6	66	13.8
I-pad	15	3.1	30	6.3	129	25.0	12	2.5	03	0.6
Desktop Computer	-	-	165	34.4	-	-	-	-	03	0.6
Android and mobile phones	21	4.4	03	0.6	279	58.1	15	3.1	69	14.4

Table 9: Are you aware/have heard of electromagnetic radiation?

Option	Frequency	Percentage
You have heard	276	57.5
Yes, partially heard	123	25.6
Never heard of it at all	72	15.0
No response	09	1.9
Total	480	100.0

Fig. 2: Are these ICT facilities harmful to the health of human beings?; A picture of a man keeping his android mobile phone in his pocket

Negative effects of ICT facilities on men: Figure 2 showed that 54.0% of the respondents said yes these facilities are harmful to the health of human being, 19.0% said no, 28% said they do not know while 2.0% gave no responses to the question. It means majority of the people in Nigeria have the knowledge that these facilities are injurious to the health of men.

Figure 3 shows that 40.6% of the respondents always feel heat from the facilities especially when using them, 25% said they feel nothing, 23% feel warm, 8% did not responses to the question and 5.6% feel cool. This heat always has a negative effect on the sperm of men and renders them infertile.

Most of the respondents 35.6% said yes, heat affect the users, 35% said no, heat does not affect the users while only 13.1% of the respondents gave no response to the question (Fig. 4). It means there is a thin line between those who know the effects of these ICT facilities on men fertility and those that does not know at all (Fig. 5).

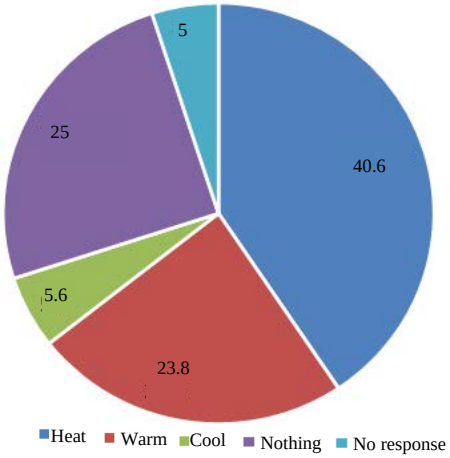

Fig. 3: Respondent's feeling when keeping laptop on the lap or mobile phones in the pocket?

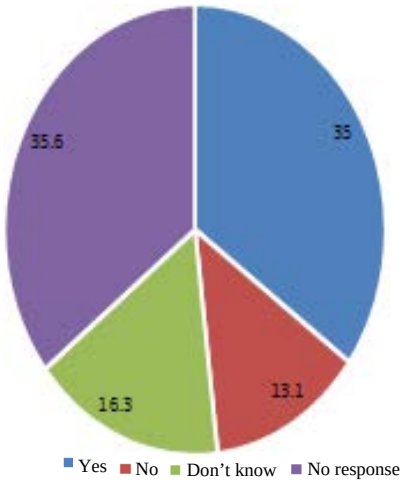

Fig. 4: If heat affect user of facilities or not?

Knowledge of electromagnetic radiation waves: It was disclosed that 47.5% of the respondents said yes have heard about electromagnetic radiation, 25.6% have partially heard about it while 15.0% never heard of it at all. This showed that most of the respondents have heard about electromagnetic radiation but might not really know what the implication is (Table 9).

Table 10: Knowledge about electromagnetic radiation waves

Options	SA (%)	A (%)	I (%)	D (%)	SD (%)	Total (%)
I have heard of electromagnetic radiation	12436.3	15743.1	4810.0	061.3	759.4	480100.0
I have a good knowledge of what electromagnetic radiation means	9620.0	22546.9	4810.0	245.0	8718.2	480100.0
I have seen effects of electromagnetic radiation in action on human beings	7816.3	12926.9	10221.3	6613.8	10521.9	480100.0
I have heard about the effects of electromagnetic radiation on human being	12025.0	21344.4	6012.5	245.0	6313.2	480100.0
I only see videos of effects of electromagnetic radiation on human being	9620.0	18037.5	6313.1	275.6	8423.7	480100.0
I strongly believe that electromagnetic radiation is real and can affect human being	16534.4	16835.0	7215.0	214.4	5411.3	480100.0
ICT gadgets attracts some energy when charging them	21344.4	18638.8	428.8	183.8	214.4	480100.0

Table 11: Laptop internet connectivity and men infertility

Options	SA (%)	A (%)	I (%)	D (%)	SD (%)	Total (%)
An internet connected laptop is electromagnetic radiation characterized	23446.5	16835.0	367.5	336.9	091.9	480100.0
Any time a laptop is connected to internet it has electromagnetic radiation wave that can affect men fertility	17436.3	15331.9	10215.0	367.5	153.1	480100.0
The user of laptop connected to internet is exposed to electromagnetic radiation wave	12926.9	21043.8	7816.3	459.4	183.8	480100.0
The electromagnetic radiation from internet connected to laptop weakens male's sperm	16233.8	13528.1	8718.1	6313.1	336.9	480100
The constant interaction with laptop is capable of reducing reproduction in men via. heat from the laptop and electromagnetic radiation by connecting the laptop to internet	15331.9	12025.0	11123.1	367.5	6012.5	480100

Field work

Fig. 5: A picture of men using Laptop on their Laps

From Table 10 indices were used to measure respondent's knowledge of electromagnetic radiation waves in this study. Table 10 indicated most of the respondents have a relatively good knowledge of electromagnetic radiation waves either in form of strongly agree or agree, they even have the understanding of some level of its effects on mankind. For instance, 46.9% agree that I have a good knowledge of what electromagnetic radiation means. On the effects of electromagnetic radiation waves on men in different areas, especially infertility, 35.0% of the respondents agree that I strongly believe that electromagnetic radiation is real and can affect human beings (Fig. 6).

To measure laptop internet connectivity and how it affects men fertility, the above likert scale table with 5 indices showed that all the indices are either strongly agree or agree to all the indices. For instance, one of the

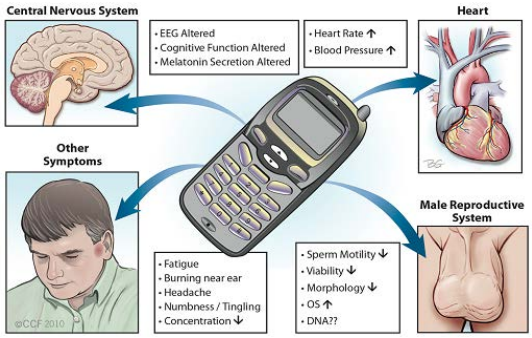

Fig. 6: Effects mobile/android phone usage on the human body

five indices above states that 36.3 and 31.9% of the respondents strongly agree and agree, respectively that "Any time a laptop is connected to internet it has electromagnetic radiation wave that can affect men fertility". This means a laptop connected to internet is capable of affecting man's fertility. See Table 11 for more information.

Finally, Table 12 focuses on the effects of electromagnetic radiation waves on Laptop and mobile phones users. This variable was measured using likert scale table with about 4 indices. The statistics above indicated that no doubt, the use of laptop and mobile phone affects every users via. electromagnetic radiation waves. See the above table for more information.

Table 12: Effect of electromagnetic radiation on laptop and mobile phones users

Options	SA (%)	A (%)	I (%)	D (%)	SD (%)	Total (%)
Electromagnetic radiation can affect human being through mobile phones	19841.3	12135.6	5711.9	214.4	336.9	480100.0
Electromagnetic radiation can affect those that use laptop connected to internet	8423.8	20743.1	9018.8	245.0	459.4	480100.0
Electromagnetic radiation is capable of making users of mobile phone and laptop infertile	11423.8	20442.5	9319.4	306.3	398.1	480100.0
The connectivity of mobile phone and laptop to internet causes electromagnetic radiation	12926.9	19240.0	10221.3	275.6	6313.2	480100.0

DISCUSSION

Development in every society is inevitable but the rate/or trend of growth and development differs from society to society. Development is domicile in the advancement in science and technology which permeate all societies. Despite the unlimited positives aspects of the progress of science and technology, it also has its negative sides. That is why this study focuses on the use of laptop and mobile phone as the correlate to men infertility, especially among staff (married men) in a Federal tertiary institution where these facilities are used in one way or the other to discharge their specialized duties.

This study came as a result of the prevalence of infertility among men both globally and most especially in developing nations like Nigeria. Etuk[16] in his paper opined that the prevalence of infertility in the United Kingdom is estimated to be in the region of 6%. In the United States of America it is about 10%. By contrast, most countries in Sub-Saharan Africa have prevalence rates of infertility of 20-30%. An infertility belt has been described in Africa. This stretches from West Africa, through Central to East Africa. Several countries with high rates of infertility that lie within this belt include: Nigeria, Cameroon, Gabon, Democratic Republic of Congo, Central African Republic, Chad, Burundi, Uganda and Kenya. In Gabon, it is estimated that >33% of women are childless at the end of their reproductive lives[17]. In some parts of Nigeria, community base studies have reported rates of infertility as high as 20%[17] and 45%[18]. Since, infertility is more or less a problem of Africa and other Developing countries, this discussion will now be emphasizing infertility as it affects Africa.

It is true that the use of laptop and mobile phone are not the only sources of infertility in men but that is the focus of this study using sociological perspective. From this study, the contribution of laptop and mobile phone use to infertility among men is inevitable simply because the adoption and use of these facilities cannot be overemphasized globally. It is noteworthy, that apart from the use of these facilities, the way and manner users of these facilities handles them is a thing of concern too.

In as much as these facilities have no alternative in 21st century, it means they will still be contributing to infertility among men among other things that causes infertility among men. All organizations globally adopt and use some level of ICT facilities depending on the capital of the organization. Human beings are expected to use these facilities in discharging their work. It means they are not free from the electromagnetic radiation generated by these facilities to neutralize their sperm. That is, to make them infertile.

CONCLUSION

In conclusion, this empirical study was done primarily to investigate the possibility of men's fertility been affected via the careless using and handling of laptop and mobile phone of any kind whether they are connected to internet or not. Although, the index of those that are likely to infertile might not be too high but the fact remains that in as much as mankind keep using these facilities and we are not careful the way and manner we handles them, men will always fall victims of infertility.

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