

# Public Health Implication of Smartphone Addiction among Undergraduates in Imo State

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## ABSTRACT

**Introduction:** Smartphone addiction is a problem of public health importance across the world. It is one of the causes of maladaptive behavioral difficulties seen in impulse control disorders in general; it can interfere with school or work, decrease real-life social interaction, decrease academic ability, cause relationship problems, and cause physical health-related problems. **Materials and Methods:** A descriptive survey study design was used in this study. A total of four hundred students were randomly selected from the four major tertiary institutions in Imo state namely; Federal university of technology Owerri, Imo state university, Alvan Ikoku College of Education and Federal polytechnic Nekede. The study was conducted in a classroom environment during the school days. Simple percentage and frequency table was used for the data analysis while chi square was used to test for the hypothesis. **Results:** Results of the findings revealed that out of 400(100%) respondent, only (5.5%) of the respondent spends 12-18hours in a day with their smart phones. It also revealed that going to bed late at night ( $X^2=0.777$ ;  $0.378 < p < 0.05$ ), sleeplessness ( $X^2=0.054$ ;  $0.816 < p < 0.05$ ), depression, stress and anxiety ( $X^2=0.830$ ;  $0.00 < p < 0.05$ ) and getting distracted in class ( $X^2=0.523$ ;  $0.470 < p < 0.05$ ) has no significant relationship with smart phone addiction while leaving the Smartphone on the bed while sleeping ( $X^2=0.734$ ;  $0.030 < p < 0.05$ ) has significant relationship with smart phone addiction. **Conclusion:** This study has clearly shown the prevalence of smart phones addiction among undergraduate students in Imo state. As such, there is the need to develop Public Health preventive strategies by creating awareness on the health implications of smart phones addiction in the same way substance addiction is been confronted. **Recommendations:** Manufacturers of mobile phones should enlighten the adolescence users of mobile phone through their manuals of some of the implications as revealed in the study.

**Key words:** Smart phones addiction, Undergraduates, Imo State.

## INTRODUCTION

Smart phones are multifaceted, wireless, transportable device used for telecommunications and more recently internet creativity including web browsing, email, text messaging and social media involvement (1). It became an integral part of modern telecommunications facilities. In some regions of the world, they are the most reliable or only available mode of communication. This smart phones allow people to

maintain continuous communication without interruption of their movements and distances (2). The use of smart phones by university students has dramatically increased over the last decades in all parts of the world. This may promote public health with respect to provision of information, facilitation of pro-social activities and other factors. However, this increase is also associated with documented cases of excessive use among undergraduates that warrant consideration (3).

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Excessive smart phone use which can be defined as smart phones use for sixteen hours and above in a day (4) can cause maladaptive behavioral difficulties seen in impulse control disorders; in general, it can interfere with school or work, decrease real-life social interaction, it can interfere with school or work, decrease real-life social interaction, decrease academic ability, cause relationship problems, and cause physical health-related problems including blurred vision and pain in the wrists or the back of the neck (5).

Smartphone addiction commonly defined as excessive use of smart phone therefore is a disorder involving impulsive over use of smart phone, quantified as the number of time users access their smart phone and/or the total amount of time they are online in a day.

## MATERIALS AND METHODS

The study adopted a descriptive survey research design to determine the public health implications of smart phones addiction among undergraduates in Imo State. The study recruited 400 undergraduates in four tertiary institutions in Imo State.

A structured questionnaire was used for data collection after

being validated and its reliability tested. Data collected was entered into the computer and analyzed using Statistical Packages for Social Sciences (SPSS) Version 21.0. The data was analyzed using descriptive statistics of frequency counts and percentages, chi-square ( $X^2$ ) statistics was used to test relationship between public health implications of smart phones addiction. P-value  $\leq 0.05$  were considered statistically significant.

## RESULTS

### Prevalence of Smart Phone Addition Amongst Undergraduates in Imo State

From Table 1, 353(88.3%) of the respondents spend 1-7hrs browsing on academic information, 39(9.8%) of the respondents spend 8-15hrs while 8(2.0%) of the respondents spend 16-23hrs browsing on academic information. on social media platform, 304(76.0%) respondents spend 1-7hrs, 65(16.3%) respondents spend 8-15hrs while 31(7.8%) respondents spend 16-23hrs. Investigation also showed that 331(82.8%) respondents spend 1-6hrs, 61(15.3%) respondents spend 6-12hrs while 8(2.0%) respondents spend 12-18hrs on playing games, watching online videos.

Analysis also revealed that 51% of the undergraduates spends

**Table 1: Prevalence and behavioral changes associated with Smartphone Addiction amongst Undergraduates in Imo State**

| S/N | Prevalence and behavioral changes associated with Smartphone Addiction Among Respondents Using The Smartphone Addiction Scale Short Version | Frequency(n=400) | Percentage (%) |
|-----|---|------------------|----------------|
| 1   | How many hours do you spend on social media platforms?  |                  |                |
|     | 1-7 hours   | 304              | 76.0           |
|     | 8-15 hours  | 65               | 16.3           |
|     | 16-23 hours   | 31               | 7.8            |
| 2   | How many hours do you spend on playing games, watching online videos and  |                  |                |
|     | 1-6 hours   | 331              | 82.8           |
|     | 6-12 hours  | 61               | 15.3           |
|     | 12-18 hours   | 8                | 2.0            |
| 3   | Do you ever forget about usual needs such as eating or sleeping due to?   |                  |                |
|     | Yes   | 107              | 26.8           |
|     | No  | 293              | 73.3           |
| 7   | Do you go to bed late as a result of being on your smartphone?  |                  |                |
|     | Yes   | 262              | 65.5           |
|     | No  | 136              | 34.5           |
| 8   | Do you run late for lectures as a result of being on your smartphone?   |                  |                |

|    |   |            |             |
|----|---|------------|-------------|
|    | <b>Yes</b>  | <b>99</b>  | <b>24.8</b> |
|    | <b>No</b>   | <b>301</b> | <b>75.3</b> |
| 9  | <b>Do you easily get distracted in class as a result of being on your</b>   |            |             |
|    | <b>Yes</b>  | <b>166</b> | <b>41.5</b> |
|    | <b>No</b>   | <b>234</b> | <b>58.5</b> |
| 10 | <b>Does being on your smartphone prevent you from doing other important</b> |            |             |
|    | <b>Yes</b>  | <b>181</b> | <b>45.3</b> |
|    | <b>No</b>   | <b>219</b> | <b>54.8</b> |

1-6 hours in a day with their smart phones, 43.5%of the undergraduate spends 6-12 hours in a day with their smart phones while 5.5% of the undergraduate spends 12-18hours in a day with their smart phones.

**Behavioral changes associated with smart phone addiction among respondents**

Presented in Table 2 are the behavioral changes associated with smart phone addiction among the respondents. One hundred and seven (26.8%) respondents do forget about usual needs such as eating or sleeping due to the use of their smart phones while two hundred and thirteen (73.3%) does not. Two hundred and eighty two (65.5%) do go to bed/eat late as a result of being on their smart phone while one hundred and thirty eight (34.5%) do not. Ninety nine (24.8%) respondents do run late for lectures as a result of being on there smart

phones while three hundred and one (75.3%) do not. one hundred and sixty six (41.5%) easily get distracted in class as a result of being on their smart phones while two hundred and thirty four (58.5%) do not. One hundred and eighty one respondents (45.3%) are prevented from doing other things in the day due to being on their smart phones while two hundred and nineteen (54.8%) are not. Two hundred and eight (52.0%) sometimes leave their smart phones on the bed while sleeping, one hundred and fifty four (38.5%) always leave their smart phone on the bed while sleeping while thirty eight (9.5%) rarely leave their smart phones on the bed while sleeping. eighty eight (22.0%) of the respondents do have the urge to stay away from people i.e family and friends more often than normal while three hundred and twelve (76.0%) do not. Eighty eight (22.0%) respondents sometimes feel like being all by themselves to get more times with their phones while

**Table 2: Behavioural Changes Associated with Smartphone Addiction among Respondents**

| S/N | Behavioural Changes Associated With Smartphone Addiction Among Respondents                                 | Frequency(n=400) | Percentage (%) |
|-----|--|------------------|----------------|
| 1   | <b>Do you ever forget about usual needs such as eating or sleeping due to the use of your smart phone?</b> |                  |                |
|     | <b>Yes</b>   | <b>107</b>       | <b>26.8</b>    |
|     | <b>No</b>  | <b>213</b>       | <b>73.3</b>    |
| 2   | <b>Do you go to bed/eat late as a result of being on your smartphone</b>                                   |                  |                |
|     | <b>Yes</b>   | <b>282</b>       | <b>65.5</b>    |
|     | <b>No</b>  | <b>138</b>       | <b>34.5</b>    |
| 3   | <b>Do you run late for lectures as a result of being on your smartphone</b>                                |                  |                |
|     | <b>Yes</b>   | <b>99</b>        | <b>24.8</b>    |
|     | <b>No</b>  | <b>301</b>       | <b>75.3</b>    |
| 4   | <b>Do you easily get distracted in class as a result of being on your smartphone</b>                       |                  |                |
|     | <b>Yes</b>   | <b>166</b>       | <b>41.5</b>    |
|     | <b>No</b>  | <b>234</b>       | <b>58.5</b>    |
| 5   | <b>Does being on your smartphone prevent you from doing other important things in the day</b>              |                  |                |
|     | <b>Yes</b>   | <b>181</b>       | <b>45.3</b>    |
|     | <b>No</b>  | <b>219</b>       | <b>54.8</b>    |

|   |  |     |      |
|---|--|-----|------|
| 6 | <b>Do you usually leave your smartphone on your bed while sleeping</b> |     |      |
|   | Sometimes  | 208 | 52.0 |
|   | Always   | 154 | 38.5 |
|   | Rarely   | 38  | 9.5  |

three hundred and twelve (76.0%) do not

**Association between Behavioral Changes and Smart Phone Addiction Among Undergraduates in Imo State**

Presented herein Table 3 is the association between behavioral changes of undergraduates in relation to smart phone addiction in Imo state.

Analysis revealed that out of 107(100%) respondents who usually forget about usual needs such as eating or sleeping

due to smart phones use , 24(22.4%) responded to have spent 16 hours or more browsing with their smart phones while 83(77.7%) has not. Out of 213(100%) respondents who do not ever forget about usual needs such as eating and sleeping due to the use of smart phones 60(28.2%) has spent 16 hours or more browsing with your phone while 153(71.8%) has not. Further analysis revealed that there is significant association between forgetting about usual needs such as eating or sleeping due to the use of smart phones and smart phone addiction state ( $X^2=4.506$ ;  $0.03 < p < 0.05$ ). Out of the 282(100%) respondents who go to bed/eat late as a result

**Table 3: Association between Behavioral Changes and Smartphone Addiction among Undergraduates in Imo State**

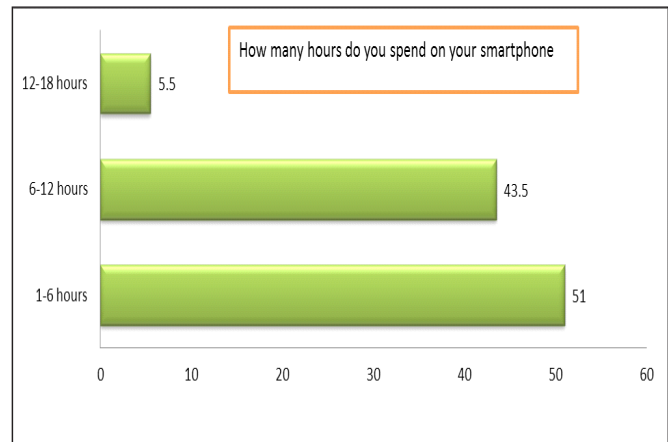
| S/N | Behavioural Changes Associated With Smartphone  | Have you spent more than 16 hours or more browsing with your phone |            | Total     | X2(95% CI)    |
|-----|---|--|------------|-----------|---------------|
|     |   | Yes  | No         |           |               |
| 1   | Do you ever forget about usual needs such as eating or sleeping due to the use of your smart phone? |  |            |           |               |
|     | Yes   | 24(22.4%)  | 83 (77.5%) | 107(100%) | 4.506 (0.034) |
|     | No  | 60(28.2%)  | 153(71.8%) | 213(100%) |               |
| 2   | Do you go to bed/eat late as a result of being on your smartphone                                   |  |            |           |               |
|     | Yes   | 55(19.5%)  | 227(80.5%) | 282(100%) | 0.777(0.378)  |
|     | No  | 50(36.2%)  | 88(63.8%)  | 138(100%) |               |
| 3   | Do you run late for lectures as a result of being on your smartphone                                |  |            |           |               |
|     | Yes   | 34(34.3%)  | 65(65.7%)  | 99(100%)  | 0.054(0.816)  |
|     | No  | 62(20.6%)  | 239(79.4%) | 301(100%) |               |
| 4   | Do you easily get distracted in class as a result of being on your smartphone                       |  |            |           |               |
|     | Yes   | 57(34.3%)  | 109(65.6%) | 166(100%) | 0.523(0.470)  |
|     | No  | 66(28.2%)  | 168(71.7%) | 234(100%) |               |
| 5   | Does being on your smartphone prevent you from doing other important things in the day              |  |            |           |               |
|     | Yes   | 72(39.7%)  | 109(60.2%) | 181(100%) | 0.255(0.0514) |
|     | No  | 56(25.5%)  | 163(74.4%) | 219(100%) |               |
| 6   | Do you usually leave your smartphone on your bed while sleeping                                     |  |            |           |               |
|     | Sometimes   | 58(27.9%)  | 150(72.1%) | 208(100%) | 0.734(0.030)  |
|     | Always  | 51(33.1%)  | 103(66.8%) | 154(100%) |               |
|     | Rarely  | 18(47.4%)  | 20(52.6%)  | 38(100%)  |               |

of being on their smart phones 55(19.5%) has spent 16 hours or more browsing with their smart phones while 227(80.5%) has not. Out of 138(100%) respondents who do not go to bed /eat late as a result of being on their smart phones 50(36.2%) 16 hours or more browsing with their smart phones while 88(63.8%) has not. Further analysis revealed that there is no significant association between going to bed/eating late as a result of being on the smart phone ( $X^2=0.777$ ;  $0.378 < p < 0.05$ ). Out of the 99(100%) respondents who run late for lectures as a result of being on their smart phones, 34(34.3%) has spent 16 hours or more browsing their smart phones while 65(65.7%) has not. Out of the 301(100%) respondent who do not run late to lectures as a result of being on their smart phones, 62(20.6%) has spent 16 hours or more browsing on their smart phones while 239(79.4%) has not. Further analysis revealed that there is no significant association between running late to lectures as a result of being on the smart phone and smart phone addiction. ( $X^2=0.054$ ;  $0.816 < p < 0.05$ ). Out of 166(100%) respondents who easily get distracted in class as a result of being on your smart phone 57(34.3%) has spent 16hours or more browsing on their smart phone a day while 109 (65.6%) has not. Out of 234(100%) who do not easily get distracted in class as a result of being on their smart phones, 66(28.2%) has spent 16hours or more browsing on their smart phones in a day while 168(71.7%) has not. Further analysis revealed that there is no significant association between smart phone addiction and being distracted in class as a result of being on their smart phones ( $X^2=0.523$ ;  $0.470 < p < 0.05$ ). Out of 181(100%) respondents who being on their smart phone prevent them from other important things in a day 72(39.7%) has spent 16 hours or more on their smart phones in a day while 109(60.2%) has not. Out of the 219(100%) respondents who are not prevented from doing other important things as a result of being on their smart phone 56(25.5%) has spent 16 hours or more browsing on their smart phones in a day while 163(74.4%) has not. Further analysis revealed that there is no significant association between being on their smart phone and preventing them from doing other important things in the day and smart phone addiction. ( $X^2=0.255$ ;  $0.0514 < p < 0.05$ ). Out of the 208(100%) who sometimes leave their smart phone on their bed while sleeping 58(27.9%) has spent 16 hours or more on their smart phones in a day while 150(72.1%) has not. Out of 154(100%) who always leave their smart phone on their bed while sleeping 51(31.1%) has spent 16hours or more on their smart phones a day while 103(66.8) has not. Out of the 38(100%) who rarely leave their smart phone on their bed while sleeping 18(47.4%) has spent 16 hours or more on their smart phone a day while 20(52.6%) has not further analysis revealed that there is a significant association between leaving the smart phone on the bed while sleeping and smart phone addiction. . ( $X^2=0.734$ ;  $0.030 < p < 0.05$ ).

## DISCUSSION

In this study, 98% of the respondents spend less than 16hrs in a day browsing on academic information, accessing social

watching online videos while 2.0% of the respondents spend 16-23hrs browsing on academic information, accessing social media platform, playing games and watching online videos. On the other hand, Analysis also revealed that 94.5% of the undergraduates spend less than 16 hours in a day with their smart phones while 5.5% of the undergraduate spends 16-23hours in a day with their smart phones.



**Figure 1. How many hours do you spend on your smartphone in a day**

### Association between behavioral changes and smart phone addiction among undergraduates in Imo state

The result in Table 3 revealed that out of the 282(100%) respondents who go to bed/eat late as a result of being on their smart phones 55(19.5%) has spent more than 16 hours or more browsing with their smart phone in a day while 227(80.5%) has not. Further analysis revealed that there is no significant relationship between going to bed/eating late as a result of being on the smart phones and smart phones addiction statistically significant at ( $X^2=0.777$ ;  $0.378 < p < 0.05$ ). This is against the work of (6) This is against the work of (6) whose work showed that mobile phone was highly significantly ( $p < 0.0001$ ) associated with going late for classes and going to bed late at night.

The result in Table 3 also showed that out of 166 (100%) respondents who easily get distracted in class as a result of being on their smart phone, 57(34.3%) has spent 16hours or more on their smart phone a day while 109 (65.6%) has not. Out of 234(100%) who do not easily get distracted in class as a result of being on their smart phones, 66(28.2%) has spent 16hours or more browsing on their smart phones in a day while 168(71.7%) has not. Further analysis revealed that there is no significant relationship between getting distracted in class and smart phone addiction statistically significant at ( $X^2=0.523$ ;  $0.470 < p < 0.05$ ). This was contrary to the work done by (6) whose work showed that mobile phone was highly significantly ( $p < 0.0001$ ) associated with getting distracted in class



The result in Table 3 revealed that there is a significant relationship between leaving the smart phones on the bed while sleeping and smart phones addiction. . ( $X^2=0.734$ ;  $0.030 < p < 0.05$ ). Out of the 208(100%) who sometimes leave their smart phone on their bed while sleeping 58(27.9%) has spent 16 hours or more on their smart phones in a day while 150(72.1%) has not. This is in line with a research by (7) on effect of mobile phone usage before sleep. His result showed that that 82% of the respondent who usually leave their mobile phones on the bed while sleeping do not get quality sleep and their sleep duration was small when compared with others who do not leave their phone on the bed while sleeping.

## CONCLUSION

Findings from this study have revealed the negative effects of smart phone addiction human productivity. Measures must be put in place to nib this development in the bud. This naturally shows the direction to which campaigns against smart phones addiction should be concentrated, as such, there is the need to develop Public Health preventive strategies by creating awareness on the health implications of smart phones addiction in the same way substance addiction is been confronted..

## CONTRIBUTION TO KNOWLEDGE

This study will raise public awareness on public health implication of smart phone addiction, also for enabling early identification (e.g., how to identify the problem; what support services are available; what are potential health risks and harms associated with excessive use of smart phones, and what are available prevention, approaches and treatment interventions).

## RECOMMENDATIONS

- 1) Students should be guided and counseled on the use of mobile phones at the point of entry for their academic program on the campus. This would require the services of the School Guidance and Counseling Unit where they would be told how, when and where to use it. This will educate them on the advantages and disadvantages of appropriate time for using mobile phones.
- 2) It is recommended that operational involvement and practical prevention programs which would discourage mobile phone addiction in students should be developed and configured in all cell phones.
- 3) Stress, anxiety and depression management program should be introduced at universities in addition to implementing recreational and outreach health promotion programs that educate the public on the negative impacts of smart phones addiction on their health.

## COMPETING INTERESTS

Authors have declared that no competing interests exist

## AUTHORS CONTRIBUTION

Oparaigwe, Martin C. conceived the study, designed the questionnaire and performed data collection

Ebirim C. I.C supervised the work and critically validated the statistical analysis

Udujih co- supervised the work

Iwuala C.C reviewed the work

Nwachukwu, Christian performed the statistical analysis

Chukwu Rita Ogechireviewed the work

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