

A Quasi Experimental Study to Assess the Effectiveness of Planned Teaching Programme Regarding Knowledge on Negative Impact of Mobile Phone among Undergraduate Students in Selected Colleges at Lucknow

Mrs. Rupali Chaudhary¹, Ms. Sony Verma²

¹Assistant Professor, M.Sc. Nursing (Community Health Nursing),

²Vice Principal, M.Sc. Nursing (Child Health Nursing),

^{1,2}Integral Institute of Nursing Sciences & Research, Integral University, Lucknow, Uttar Pradesh, India

ABSTRACT

BACKGROUND OF THE STUDY

Mobile phones were introduced in few markets in the 1980s, and their use spread only in the mid-1990s. Subscribers increased from 12.4 million in 1990 to 500 million in 2000 to 3.3 billion in 2008 and 5.3 billion at the end of 2013. Estimations show that the prevalence of mobile use will be increased to 95% and further more in the coming years. The use of mobile phones is now so extensive that in some countries the number of phone subscriptions outnumbers the population. Indian market is one of the largest in the world for mobile phones.¹⁵ The number of mobile device users around the world has grown to 5.035 billion, (2017) with the latest billion users being added in just the last four years, according to new statistics released by GSMA Intelligence.¹⁶ For 2017 the number of mobile phone users in India was around 730.7 million which is increasing every year.¹⁷ The largest populous state in India, Uttar Pradesh has emerged as the state with largest number of cell phone subscribers in the country which is followed by Tamil Nadu, Maharashtra, Andhra Pradesh and Bihar. There are lakhs of people concentrated in each area of Uttar Pradesh, the capital of this cell phone number is Lucknow and other locations in Uttar Pradesh are Kanpur, Lucknow, Varanasi, Allahabad, and Farukhabad out of no. of district.

How to cite this paper: Mrs. Rupali Chaudhary | Ms. Sony Verma "A Quasi Experimental Study to Assess the Effectiveness of Planned Teaching Programme Regarding Knowledge on Negative Impact of Mobile Phone among Undergraduate Students in Selected Colleges at Lucknow" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-6 | Issue-5, August 2022, pp.223-230, URL: www.ijtsrd.com/papers/ijtsrd50453.pdf



Copyright © 2022 by author(s) and International Journal of Trend in Scientific Research and Development Journal. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0) (<http://creativecommons.org/licenses/by/4.0>)



OBJECTIVES

- To determine the Pretest level of knowledge regarding negative impact of mobile phone among undergraduate students.
- To find the effectiveness of planned teaching programme on negative impact of mobile phone among undergraduate students.
- To find out the difference between the post-test knowledge score of control group and experimental group.
- To find the association between pre-test knowledge score on negative impact of mobile phones with their demographic variables among undergraduate students.

MATERIAL AND METHODS

RESEARCH APPROACH- A quantitative research approach

RESEARCH DESIGN- Quasi-experimental research design, Nonrandomized control group design.

	Pre-Test	Administration of PTP	Post-Test
NRE	O ₁	X	O ₂
NRC	O ₃	-----	O ₄

Key:

NRE: Non-Randomized Experimental group.

NRC: Non-Randomized Control group.

O₁, O₃: Assessing the knowledge of undergraduate students regarding negative impact of mobile phones.

X: Administration of planned teaching program (PTP) on negative impact of mobile phones among undergraduate students.

O₂, O₄: Assessing the post- test knowledge of undergraduate students regarding negative impact of mobile phone.

POPULATION:

- **Target Population:** Undergraduate students at selected colleges of Lucknow.
- **Accessible Population:** The selected undergraduate students who were present on the day of conducting study, of selected colleges of Lucknow.

RESEARCH SETTING: The study was conducted at selected colleges in Lucknow.

Experimental group- St. Mary College of Nursing, Lucknow.

Control group- Bora College of Nursing, Lucknow.

SAMPLING TECHNIQUE AND SAMPLE SIZE: (Non-probability Purposive sampling technique),

SAMPLE SIZE- 60 (30 Experimental & 30 Control group)

Independent variable- Planned teaching programme for undergraduate students regarding negative impact of mobile phones.

Dependent variable- Knowledge of undergraduate students regarding negative impact of mobile phones.

Demographic variables: Age, gender, religion, marital status, type of family, family's monthly income, stream of education, type of mobile phone, time spent on mobile phone on an average, most important feature of mobile phone, duration of using mobile phone, source of information.

DESCRIPTION OF DATA COLLECTION TOOL:

➤ **Part 1: Demographic characteristics: Demographic variables:**

Age, gender, religion, marital status, type of family, family's monthly income, stream of education, type of mobile phone, time spent on mobile phone on an average, most important feature of mobile phone, duration of using mobile phone, source of information

- **Part 2: Structured knowledge questionnaire: Self-** structured knowledge assessment questionnaire on mobile phone introduction, history, definition, impacts, negative impact of mobile phones, and safety tips.

RESULTS AND DISCUSSION

PRESENT STUDY RESULT: Pre-test level of knowledge in the experimental group, majority of undergraduate students, 83.3% had moderate level of knowledge, 10% had adequate level of knowledge and 6.7% had inadequate level of knowledge. In the post-test, 10% had moderate level of knowledge, 90% had adequate level of knowledge and 0% had inadequate level of knowledge. Pre-test level of knowledge in the control group, majority 86.7% had moderate level of knowledge, 10.0% had inadequate level of knowledge and 3.3% had adequate level of knowledge. In the post-test, 83.3% had moderate level of knowledge and 10% had inadequate level of knowledge and 6.7% had adequate level of knowledge.

COMPARATIVE STUDY RESULT

MAJOR STUDY FINDING INCLUDE

- Majority of students age in experimental group is 19-20 years i.e. 70.0% and in control group 70.0% belongs to age group 19-20 years.
- Majority of undergraduate students in experimental group 86.7% and in control group 93.3% were females.
- Majority of undergraduate students in experimental group 86.7% and in control group 90.0% were Hindus.
- Majority of undergraduate students in experimental group 96.7% and in control group 96.7% were unmarried.
- Majority of undergraduate students in experimental group 56.7% belongs to joint family and majority of undergraduate students in control group 76.7% belongs to nuclear family.
- Majority of undergraduate students in experimental group 30% have family's monthly income between Rs. 10,000-15,000 and majority of undergraduate students in control group 30% have family's monthly income between Rs. 20,001- 25,000.
- All of undergraduate students in experimental group and control group 100% have science as stream of education.
- Majority of undergraduate students in experimental group 76.7% and in control group 90% use android phones.
- Majority of undergraduate students in experimental group 50% spent an average of 1.5 hours-2.5 hours in mobile phone and majority of undergraduate students in control group 40%

spent an average of 30 min -1.5 hours in mobile phone.

- Majority of undergraduate students in experimental group 66.7% and in control group 66.7% considers internet browsing as the most important feature of mobile phone.
- Majority of undergraduate students in experimental group 36.7% and in control group 46.7% are using mobile phones since 1 year to 2 years.
- Majority of undergraduate students in experimental group 36.7% and in control group 83.3% have some information about negative impacts of mobile phones through internet.
- In section 2, Pre-test level of knowledge in the experimental group, majority of undergraduate students, 83.3% had moderate level of knowledge, 10% had adequate level of knowledge and 6.7% had inadequate level of knowledge. In the post-test, 10% had moderate level of knowledge, 90% had adequate level of knowledge and 0% had inadequate level of knowledge.
- Pre-test level of knowledge in the control group, majority 86.7% had moderate level of knowledge, 10.0% had inadequate level of knowledge and 3.3% had adequate level of knowledge. In the post-test, 83.3% had moderate level of knowledge and 10% had inadequate level of knowledge and 6.7% had adequate level of knowledge.
- In section 3, in experimental group the pre-test mean value 16.03 ± 3.85 was lesser than post-test mean value 25.37 ± 3.10 . The effectiveness of Planned Teaching Programme, i.e. the obtained 'T' test value is 13.82 which is found to be greater than the 'T' table value ($p=0.0001 < 0.05$ level) at 29 df. Since the obtained t value is significant at $p < 0.001$ level, therefore research hypotheses (H1) is accepted. It is inferred that there is significant difference in knowledge among undergraduate students in experimental group In control group the mean posttest knowledge score was 10.7 which were higher than the pre-test knowledge score of 10.1. The mean difference obtained was 0.6.
- In section 4, In Control group the pre-test mean value 15.07 ± 3.26 was lesser than post-test mean value 15.20 ± 4.37 . i.e. the obtained 'T' test value is 0.248 which is found to be lesser than the 'T' table value ($p=0.226 > 0.05$ level) at 29 df. Since the obtained t value is not significant at $p < 0.05$ level. It is inferred that there is no significant difference in knowledge among Undergraduate Students in control group.
- The result shows that there was no improvement in knowledge among students in control group.
- In section 5, The post-test mean value in experimental group 25.37 ± 3.10 was greater than post-test mean value of control group 15.20 ± 4.38 . i.e, the obtained independent 'T' test value is 10.39 which is found to be greater than the 'T' table value ($p=0.0001 < 0.001$ level) at 58 df. Since the obtained t value is significant at $p < 0.001$ level, therefore research hypotheses (H2) is accepted. It is inferred that there will be significant difference between post-test knowledge among undergraduate students in the experimental and control group.
- In section 6, there was significant association between pretest level of knowledge of experimental group with selected demographic variables like marital status. There was no significant association between pretest level of knowledge of experimental group with selected demographic variables like age, gender, religion, type of family, family's monthly income, stream of education, type of mobile phone, average time spent on mobile phone, most important feature of mobile phone, duration of using mobile phone, source of information, if any.
- In section 7, there was significant association between pretest level of knowledge of control group with selected demographic variables like gender, religion, marital status, type of mobile phone. There was no significant association between pretest level of knowledge of control group with selected demographic variables like age, type of family, family's monthly income, stream of education, average time spent on mobile phone, most important feature of mobile phone, duration of using mobile phone, source of information, if any. Therefore research hypotheses (H3) is accepted.

GRADATION OF PRE-TEST AND POST-TEST SCORE OF EXPERIMENTAL AND CONTROL GROUP

Frequency and Percentage distribution of Pre-test and Post-test level of Knowledge.

n = 60

Planned Teaching Programme	INADEQUATE				MODERATE				ADEQUATE			
	Experimental group n =30		Control group n = 30		Experimental group n =30		Control group n = 30		Experimental group n =30		Control group n = 30	
	No	%	No	%	No	%	No	%	No	%	No	%
PRE - TEST	2	6.7%	3	10%	25	83.3%	26	86.7%	3	10%	1	3.3%
POST - TEST	0	0%	3	10%	3	10%	25	83.3%	27	90%	2	6.7%

The table depicts the frequency and percentage distribution of pre and post-test level of knowledge about negative impacts of mobile phones in the experimental and control group.

With regard to pre-test level of knowledge in the experimental group, majority of undergraduate students, 83.3% had moderate level of knowledge, 10% had adequate level of knowledge and 6.7% had inadequate level of knowledge. In the post-test, 10% had moderate level of knowledge, 90% had adequate level of knowledge and 0% had inadequate level of knowledge.

With regard to pre-test level of knowledge in the control group, majority 86.7% had moderate level of knowledge, 10.0% had inadequate level of knowledge and 3.3% had adequate level of knowledge. In the post-test, 83.3% had moderate level of knowledge and 10% had inadequate level of knowledge and 6.7% had adequate level of knowledge.

DATA ON COMPARISON OF PRE- TEST AND POST- TEST KNOWLEDGE SCORE WITHIN THE EXPERIMENTAL GROUP BY USING PAIRED ‘T’ TEST.

Mean, standard deviation, standard error, t value regarding pre -test and post-test knowledge among undergraduate students in experimental group.

EXPERIMENTAL GROUP n = 30						
	Mean	SD	SE	‘t’ value	Df	p-value
PRE-TEST	16.03	3.85	0.67	13.822	29	0.0001
POST-TEST	25.37	3.10				

Table 4.3.1: shows , In experimental group the pre-test mean value 16.03 ± 3.85 was lesser than post-test mean value 25.37 ± 3.10 . The effectiveness of Planned Teaching Programme, i.e. the obtained ‘T’ test value is 13.82 which is found to be greater than the ‘T’ table value ($p=0.0001 < 0.05$ level) at 29 df. Since the obtained t value is significant at $p < 0.001$ level, therefore research hypotheses (H_1) is accepted. It is inferred that there is significant difference in knowledge among undergraduate students in experimental group.

DATA ON COMPARISON OF PRE- TEST AND POST- TEST KNOWLEDGE SCORE WITHIN THE CONTROL GROUP BY USING PAIRED ‘T’ TEST.

Mean, standard deviation, standard error, t value regarding pre –test and post-test knowledge among undergraduate students in control group.

CONTROL GROUP N = 30						
	Mean	SD	SE	‘t’ value	Df	p-value
PRE-TEST	15.07	3.26	0.54	0.248	29	0.81
POST-TEST	15.20	4.37				

In Control group the pre-test mean value 15.07 ± 3.26 was lesser than post-test mean value 15.20 ± 4.37 . i.e. the obtained ‘T’ test value is 0.248 which is found to be lesser than the ‘T’ table value ($p=0.226 > 0.05$ level) at 29 df. Since the obtained t value is not significant at $p < 0.05$ level. It is inferred that there is no significant difference in knowledge among undergraduate students in control group.

DATA ON COMPARISON OF POST-TEST SCORE OF EXPERIMENTAL AND CONTROL GROUP BY USING INDEPENDENT ‘T’ TEST.

Comparison of post-test knowledge scores among two groups.

Group	No	Mean	SD	SD error	‘t’ value	Df	p-value
Experimental	30	25.37	3.10	0.566	10.39	58	0.0001
Control	30	15.20	4.38	0.799			

the post-test mean value in experimental group 25.37 ± 3.10 was greater than post-test mean value of control group 15.20 ± 4.38 . i.e, the obtained independent 'T' test value is 10.39 which is found to be greater than the 'T' table value ($p=0.0001 < 0.001$ level) at 58 df. Since the obtained t value is significant at $p < 0.001$ level, therefore research hypotheses (H_2) is accepted. It is inferred that there will be significant difference between post-test knowledge among undergraduate students in the experimental and control group

ACKNOWLEDGEMENT- I would like to thank my sample.

REFERENCES

- [1] Goswami Vandana. et al. Impact of mobile phone addiction on adolescent's life. IJHS. 2015 [cited 2015 Dec]; 2(1): 69-74. Available from: <http://www.homesciencejournal.com/archives/2016/vol2issue1/PartB/2-1-19.pdf>.
- [2] History of mobile phones. Wikipedia. May 2017. Available from: <https://en.wikipedia.org/wiki/Mobilephone>.
- [3] 1G, 2G, 3G, 4G - The Evolution of Wireless Generations. Knowledgebase. Aug 2008. Available from: <https://support.chinavasion.com/index.php?Knowledgebase/Article/View/284/42/1g-2g-3g-4g---the-evolution-of-wireless-generations>.
- [4] 5G. tech target. Available from: <https://searchnetworking.techtarget.com/definition/5G>.
- [5] Mobile phone. Wikipedia. Available from: https://en.wikipedia.org/wiki/Mobile_phone.
- [6] Feature phone. Wikipedia. Available from: https://en.wikipedia.org/wiki/Feature_phone.
- [7] The smartphone turns 25: Here are the five major milestones of the device. Verdict. 2017[cited 2017 Nov]. Available from: <https://www.verdict.co.uk/smartphone-invented-25-years/>.
- [8] Smartphone. Wikipedia. Available from: <https://en.wikipedia.org/wiki/Smartphone>.
- [9] Effects of Using Mobile Phones Too Much. Answers Shark. Available from: <https://answershark.com/writing/essay-writing/cause-and-effect-essay/effects-of-using-mobile-phones-too-much.html>.
- [10] Zhang Guirong. Impact of mobile technology on people's lives. 2017[cited 2012 Apr]. Available from:
- <https://dmsp.digital.eca.ed.ac.uk/blog/literaryhighbstreet2012/2012/04/27/the-impact-of-mobile-technology-on-peoples-live/>.
- [11] Advantages and Disadvantages of Mobile Phones For Students. Worth of read. Available from: <https://www.worthofread.com/advantages-and-disadvantages-of-mobile-phones-for-students/>.
- [12] Negative effects of mobile phone use on our society, health and environment. Technology Experts. 2014[cited 2014 Aug]. Available from: <https://technology.Expertscolumn.com/negative-effects-mobile-phone-use-our-s-society>.
- [13] Rupavate Shraddha. 10 health hazards of mobile phones. Health site. 2016[cited 2016 Jun]. Available from: <http://www.thehealthsite.com/diseases-conditions/10-health-hazards-of-mobile-phones/>.
- [14] Schreiner Erin. Effects of Mobile Phones on Students. Sciencing. 2018[cited 2018 Apr]. Available from: <https://sciencing.com/effects-mobile-phones-students-5977357.html>.
- [15] Pavithra MB et al. A study on nomophobia - mobile phone dependence, among students of a medical college in Bangalore. NJCM. 2015 [cited 2015 Sep]; 6(2): 340-44. Available from: http://njcmindia.org/uploads/6-3_340-344.pdf.
- [16] Weiss R Todd. 5 Billion People Now Subscribe to Mobile Services Around the World. E week. 2017[cited 2017 Jun]. Available from: <http://www.eweek.com/mobile/5-billion-people-now-subscribe-to-mobile-services-around-the-world>.
- [17] Number of mobile phone users in India from 2013 to 2019 (in millions). Statista. 2018. Available from: <https://www.statista.com/statistics/233291/forecast-of-mobile-phone-users-in-china/>.
- [18] Singh Priyanka. Largest mobile user base in Uttar Pradesh, followed by Tamil Nadu. Gadgets now. 2013 [cited 2013 Jun]; Available from: <http://www.thehindu.com/business/Industry/Mobile-subscribers-largest-in-Uttar-Pradesh-Tamil-Nadu/article12124290.ece>.
- [19] Pavithra MB et al. A study on nomophobia - mobile phone dependence, among students of a medical college in Bangalore. NJCM. 2015[cited 2015 Sep]; 6(2):340-44. Available from: http://njcmindia.org/uploads/6-3_340-344.pdf.

- [20] George Shiny et al. A study on the mobile phone usage pattern and its dependence among medical students of a college in Kerala, India. *IJRMS*. 2017 [Cited 2017 Aug]; 5(8): 3615 -19. Available from: <http://www.msjonline.org/index.php/ijrms/article/view/3457>.
- [21] Soyemi Jumoke et al. Analysis of Mobile Phone Impact on Student Academic Performance in Tertiary Institution. *IJET*. 2015 [Cited 2015 Jan]; 5(1):361-67. Available from: https://www.researchgate.net/publication/308412938_Analysis_of_Mobile_Phone_Impact_on_Student_Academic_Performance_in_Tertiary_Institution.
- [22] Sara Thomée. Mobile phone use and stress, sleep disturbances, and symptoms of depression among young adults - a prospective cohort study. *PMC*. 2011 [cited 2011 Jan]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/21281471>.
- [23] Sara Thomée. Mobile phone use and stress, sleep disturbances, and symptoms of depression among young adults - a prospective cohort study. *PMC*. 2011 [cited 2011 Jan]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/21281471>.
- [24] Acharya P Jayanti. A Study on Some of the Common Health Effects of Cell-Phones amongst College Students. *CMHE*. 2013; 3(4). Available from: <https://www.omicsonline.org/a-study-on-some-of-the-common-health-effects-of-cell-phones-amongst-college-students-2161-0711.1000214.pdf>.
- [25] Ingrida Uloziene. Assessment of potential effects of the electromagnetic fields of mobile phones on hearing. *Biomed central*. 2005 [cited 2005 Apr]; 5(39). Available from: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-5-39>.
- [26] Ghai OP, Gupta Piyush, Paul V K. *Essential Paediatrics*. 6th ed. New Delhi: CBS Publishers; 2007. p.30.
- [27] V.S Ganesamurthy. (2007, April 24). Cell phone misuse. *The Hindu*, p.5 (col.2).
- [28] Telephone statistics [online] 2008 [cited 2008 Feb]. Available from: http://en.wikipedia.org/wiki/Telecommunications_statistics_in-India.
- [29] Telephone statistics [online] 2008 [cited 2008 Feb]. Available from: http://en.wikipedia.org/wiki/Telecommunications_statistics_in-India.
- [30] Telephone statistics [online] 2008 [cited 2008 Feb]. Available from: http://en.wikipedia.org/wiki/Telecommunications_statistics_in-India.
- [31] Shalina Pillai. (2018 April, 20). We use 90% of online time on phone. *Times of India*, Lucknow edition. p.6.
- [32] Sharma K Suresh. *Nursing Research & Statistics*. 2nd ed. New Delhi: Elsevier; 2016, p-101.
- [33] Nauert R. Cell phone addiction. [Online]. 2007 [Cited Jul 2007]. Available from: <http://www.psychcentralnews.com>.
- [34] Dixit S et al. A study to evaluate mobile phone dependence among students of a medical college and associated hospital of central India. *IJCM*. 2010; 35(2):339-41. Available from. URL: [https://www.ncbi.nlm.nih.gov/NCBI/Literature/PubMedCentral\(PMC\)](https://www.ncbi.nlm.nih.gov/NCBI/Literature/PubMedCentral(PMC)).
- [35] Chóliz M. Mobile-phone addiction in adolescence. *Prog Health Sci*. 2012; 2(1): 33-44. Available from: <http://progress.umb.edu.pl/sites/progress.umb.edu.pl/files/33-44%20Choliz.pdf>.
- [36] Merlo J. Lisa. Measuring Problematic Mobile Phone Use: Development and Preliminary Psychometric Properties of the PUMP Scale. *JOA*. 2013 [cited 2013 Aug]. Available from: <https://www.hindawi.com/journals/jad/2013/912807/>.
- [37] Kumari Arpita. a study on Severity Of Mobile Phone And Internet Use Among B.Sc. Nursing Students. *JHS*. 2013 [cited 2013 Dec]; 3(4). Available from: <http://nitte.edu.in/journal/dec%202013/67-70%20Arpitha%20Kumari.pdf>.
- [38] Wang C et al. A study on the mobile phone dependence syndrome and its distribution among 2213 college students in Guangzhou. 2013 [cited 2013 Oct]; 34(10):949-52. Available from: <http://europepmc.org/abstract/MED/24377983>.
- [39] Hafidha Suleiman. Smartphone Addiction among University Undergraduates: Omani research council. Available from: http://www.sdiarticle1.org/prh/JSRR22/2014/Revised-manuscript_version1_12245.pdf.

- [40] Roberts A James. The invisible addiction: Cell-phone activities and addiction among male and female college students. JBA. 2014[cited 2014 Aug]. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4291831/>.
- [41] Maryam Amidi. Cell Phone and Internet Addiction among Students in Isfahan University of Medical Sciences (Iran). JHSH. 2014 [cited 2014 May]; 1(3). Available from: <https://journals.bmsu.ac.ir/jhps/index.php/jhps/article/view/26/75>.
- [42] Pavithra MB et al. A study on nomophobia - mobile phone dependence, among students of a medical college in Bangalore.[abstract].2015[cited 2015 Sep]; 6(3):340-344. Available from: http://njcmindia.org/uploads6-3_340-344.pdf.
- [43] Chimata Pu Sri Nikhita et al. Prevalence of Mobile Phone Dependence in Secondary School Adolescents. [abstract] JCDR. 2015[cited 2015 Nov]; 9(11). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4668509/>.
- [44] Long J et al. Prevalence and correlates of problematic smartphone use in a large random sample of Chinese undergraduates. BMC Psychiatry. 2016[cited Nov 16]; 16(1):408. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5114822/>.
- [45] Biglu Hossein Mohammad. Factors influencing dependence on mobile phone. JARCM.2016 [cited 2016 SEP 10];4(3) : 158-62.Available from:<http://journals.tbzmed.ac.ir/JARCM/Manuscript/JARCM-4-158.pdf>.
- [46] Alosaimi D. Smartphone addiction among university students in Riyadh, Saudi Arabia. SMJ.2016 [Cited Apr 2016]; 37(6).Available from:<https://www.smj.org.sa/index.php/smj/article/view/Smj.2016.6.14430/8164>.
- [47] George Sara Aksa. Assess the level of addiction on mobile phone games among adolescents in a selected school Thrissur[abstract].APJN.2017[cited 2017]; vol4(2): 45-51. Available from: [http://mcmmed.us/downloads/1507291044\(ajpn\).pdf](http://mcmmed.us/downloads/1507291044(ajpn).pdf).
- [48] Shiny George et al. A study on the mobile phone usage pattern and its dependence among medical students of a college in Kerala, India. [abstract].IJRMS.2017[cited 2017];5(8). Available from:
- [49] Sarada Vadlamani et al. Assessment of mobile phone dependence and self-perceived effects among students of a medical college, Visakhapatnam. [abstract] IOSR-JDMS. 2017[cited 2017 Oct]; 16(10). Available from: <http://www.iosrjournals.org/iosr-jdms/papers/Vol16-issue10/Version-14/J1610144548.pdf>.
- [50] De-Sola J. Prevalence of problematic cell phone use in an adult population in Spain as assessed by the Mobile Phone Problem Use Scale (MPPUS). PLoS ONE. 2017[cited 2017 aug]; 12(8). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5542596/>.
- [51] Seong Soo et al. Smartphone use and smartphone addiction in middle school students in Korea. [research article]. Sage journals. 2018[cited 2018 Feb]. Available from: <http://journals.sagepub.com/doi/full/10.1177/2055102918755046>.
- [52] Carbonell Xavier. Problematic Use of the Internet and Smartphones in University Students. 2018[cited 2018 Mar] IJEP. Available from:[file:///C:/Users/supriya/Desktop/community/2%20research/rol/a\(11\)ijerph-15-00475-v2.pdf](file:///C:/Users/supriya/Desktop/community/2%20research/rol/a(11)ijerph-15-00475-v2.pdf).
- [53] Ozdemir Burhanettin. Prevalence of Nomophobia among University Students. A Comparative Study of Pakistani and Turkish Undergraduate Students. 2018[cited 2018 Apr]; 14(4):1519–32. Available from: <http://www.ejmste.com/Prevalence-of-Nomophobia-among-University-Students-A-Comparative-Study-of-Pakistani,84839,0,2.html>.
- [54] SP Loughrn. The effect of electromagnetic fields emitted by mobile phones on human sleep. US National Library of Medicine National Institutes of Health. 2005[cited 2005 Nov]; 16(17):1973-6. Available from URL: <https://www.ncbi.nlm.nih.gov/pubmed/16272890>.
- [55] Ingrida Uloziene e tal. Assessment of potential effects of the electromagnetic fields of mobile phones on hearing. Biomed central.2005[cited 2005 Apr] Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1087853/>.

- [56] Ravichandran Vaidyanathan Shanthy. Mobile phones and Teenagers: Impact, Consequences and Concerns - Parents/Caregivers Perspectives.2009. Available from: <http://unitec.researchbank.ac.nz/bitstream/handle/10652/1270/fulltext.pdf?sequence=1>.
- [57] Inskip PD et al. Brain cancer incidence trends in relation to cellular telephone use in the United States. Neuro-oncology. 2010 [cited 2010 Nov]; 12(11): 114 7–51.Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3098028/>.
- [58] Halayem S et al. The mobile A new addiction up on adolescents. TMJ. 2010[cited 2010 Aug]; 88(8):593-6.Available from: <https://www.ncbi.nlm.nih.gov/pubmed/17330851>.
- [59] Thomée S et al. Mobile phone use and stress, sleep disturbances, and symptoms of depression among young adults. BMC Public Health. 2011[cited 2011 Jan]; 11:66.Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3042390/>.
- [60] Merhi O Zaher. Challenging cell phone impact on reproduction: A Review. JARG. 2012[cited 2012 Apr]; 29(4): 293–97.Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3309987/>.

