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Study of Impact and Dependency of Electronic Gadgets on Health & Life Style of Students -A Comparative Study Among Youth Population in MGM Campus, Aurangabad

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Abstract: ***Introduction: Modern technology has experienced vast expansion in recent years, leading to its extensive use by people from all generations. For a generation of young people, technology has assumed a substantial stake in their social and educational lives. Aim: To study the dependency on electronic gadgets and its impact on health& life style Objectives: 1.To Study the time expend by the youth with their tech-devices. 2. To assess the intentions behind use of tech-devices and services. Methodology- Descriptive Cross-sectional study. Medicos and non medicos students between the age group 18 to 24 years were selected. Results: Out of 200 medicos, maximum 73 % and 56 % of the participants were using the mobiles for calling and massage purpose for 1-2 hours respectively. Discussion- Most of the respondents were using internet for the purpose of entertainment for a longer period of time. Out of 200 medicos, 73 % and 56 % of the participants were using the mobiles for calling and message purpose for 1-2 hours respectively. Conclusion- Most of the students using electronic devices for longer period were feeling sad, anxious, stressed and nervous in the absence of e -gadgets. This shows over dependency of students on e-gadgets.***

Keywords: Gadgets, Youth, Dependency, Lifestyle

1. Introduction

The term "gadget" refers to the portable electronic devices that belong to either one or more of the following categories: mobile phones, MP3 players and gaming consoles or any other wireless-enabled devices.[1]

The global smart phone users exceeded one billion users in the year 2012. The global electronic market expects that 4.55 billion people will be using mobile phone by the end of 2014. Finally, mobile phone penetration will increase from 61.1% to 69.4% between 2013 and 2017.[2] Latest studies indicated a wide spread of mobile application even to mobile government direction [3, 4].

Modern technology has experienced vast expansion in recent years, leading to its extensive use by people from all generations. For a generation of young people, technology has assumed a substantial stake in their social and educational lives. The vast majority of adolescents have access to computers, the Internet, cell phones, video games, and many other forms of modern technology.

Technology is the energy that acts as the driving force to drive or to run our lives. It is nothing but the results of the innovation and creativity of human beings recently. Every other day information technology or IT invents lucrative gadgets are attracting the attention of the present generation. As the vulnerable group, the youth becomes the largest consumer of such devices and services which in turn makes them addicted to them at some point of time.[5]

Mobile or cellular phones are now an integral part of modern telecommunications. In many countries, over half the population use mobile phones and the market is growing rapidly. In 2014, there is an estimated 6.9 billion subscriptions globally. In some parts of the world, mobile phones are the most reliable or the only phones available.[6]

This is a question which WHO takes very seriously. Given the immense number of people who use mobile phones, even a small increase in the incidence of adverse effects on health could have major public health implications.Because exposure to the radiofrequency (RF) fields emitted by mobile phones is generally more than a 1000 times higher than from base stations, and the greater likelihood of any adverse effect being due to handsets, research has almost exclusively been conducted on possible effects of mobile phone exposure.

Research has concentrated on the following areas:cancer, other health effects, electromagnetic interference, traffic accidents.

Cancer

Based on mixed epidemiological evidence on humans regarding an association between exposure to RF radiation from wireless phones and head cancers (Glioma and Acoustic Neuroma), RF fields have been classified by the International Agency for Research on Cancer as possibly carcinogenic to humans (Group 2B). Studies to date provide no indication that environmental exposure to RF fields, such as from base stations, increases the risk of cancer or any other disease.

Other health effects

Scientists have reported other health effects of using mobile phones including changes in brain activity, reaction times, and sleep patterns.

Electromagnetic interference

When mobile phones are used very close to some medical devices (including pacemakers, implantable defibrillators, and certain hearing aids) there is the possibility of causing interference with their operation. The risk is much reduced for 3G phones and newer equipment. There is also the potential of interference between mobile phones signals and aircraft electronics. Some countries have licensed mobile phone use on aircraft during flight using systems that control the phone output power.

Traffic accidents

Research has shown an increased risk of traffic accidents, some 3-4 times greater chance of an accident, when mobile phones (either handheld or with a "hands-free" kit) are used while driving due to distraction.[7]

Aim

To study the dependency on electronic gadgets and its impact on health& life style

Objectives

1) To find the time expend by the youth population with their tech-devices.
2) To assess the intentions behind use of tech-devices and services.
3) To study the impact of the addictive use of the e-gadgets and services on health and lifestyle.

Methodology

Study Design- Descriptive Cross-sectional Study
Study Population- Medicos and non-medicos students between the age group of 18 to 24 years. From MGM campus, Aurangabad.
Study place– MGM campus, Aurangabad.

Sample size and sampling technique- We relied on previous results from national studies for calculating sample size. With an estimated proportion (p) of gadget dependency as 20%, with an allowable error (d) of 4 %, statistical power of 80% and constant Z=1.96, the required minimum sample size came out to be 384 using the formula, sample size = Z^2 X p X (1-p)/d^2. [8] Thus, we have included total 400 students, half out of them were medicos and remaining were non medicos (200 MBBS and 200 students from other faculty i.e. BSc, Journalism, Engineering and BCS students considered to be non medicos). Participants were selected using simple random sampling to get the desired sample.

Inclusion and exclusion criteria –
We have included undergraduate medicos and non-medicos students between the age group of 18 to 24 years of both the gender and excluded those who were not willing to participate.

Plan of the study- A well structured and self administered questionnaire was used.

The questionnaire used in this study is a structured one. The first part of the questionnaire consisted of demographic profile of the participants followed by four sections. Later four sections were containing closed & open ended questions regarding the use of the electronic gadgets and the present health status of the participants.

Section-A: This section of the questionnaire contains questions regarding the use of the gadgets in a tabular form. The time spent by the respondents with the gadgets and services was asked with a provided options like 1-2 hrs, 2-4 hrs, 4-6 hrs and >6 hrs against each gadgets and services. In the present study the use of the gadgets for more than 6 hours is regarded as addictive use by the respondents.

Section-B: In this section the dependency of respondents on the electronic gadgets and services were assessed. All questions were asked and recorded in graded scale. As dependency determines the addictive behavior, so more the dependency more will be the addiction among the respondents.

Sections C and section D- Questions regarding the present health status and change in social behavior were asked. Finally the results yielded from these two sections were compared with reference to medicos and non-medicos, thus comparative analysis was made to know the impact and dependency of e-devices on physical, mental health and lifestyle of the respondents as well.
Interviews were conducted among the students regarding the use of e-gadgets and services and its impact on their health and social status was compiled and analyzed.

2. Results & Observations

Table 1: Study subjects as per their dependence on the devices. (n=400)

Dependence		Study Subjects		Chi square value, P Value
		Medical	Non medical	
Survival is difficult without gadgets even for one day.	Disagree	48(24)	40(20)	chi-square = 4.31 degrees of freedom = 2 probability = 0.116
	Can't Say	26(13)	16(8)	
	Agree	126(63)	144(72)	
Technology is the best source of entertainment.	Disagree	26(13)	28(14)	chi-square = 10.4 degrees of freedom = 2 probability = 0.005
	Can't Say	38(19)	16(8)	
	Agree	136(68)	156(78)	
You are unaware of the surroundings while busy with	Disagree	54(27)	14(7)	chi-square = 32.6 degrees of freedom = 2
	Can't Say	28(14)	54(27)	

gadgets	Agree	118(59)	132(66)	probability = 0.0001
Music makes it easy to work	Disagree	66(33)	42(21)	chi-square = 33.4
	Can't Say	18(9)	64(32)	degrees of freedom = 2
	Agree	116(58)	94(47)	probability = 0.0001
Social relationship is ruined by social networking sites	Disagree	26(13)	44(22)	chi-square = 9.01
	Can't Say	36(18)	46(23)	degrees of freedom = 2
	Agree	138(69)	110(55)	probability = 0.011
Technology makes the young mass smart	Disagree	14(7)	10(5)	chi-square = 1.11
	Can't Say	36(18)	32(16)	degrees of freedom = 2
	Agree	150(75)	158(79)	probability = 0.574
Computer/IT education should be mandatory in higher education.	Disagree	66(33)	36(18)	chi-square = 16.0
	Can't Say	24(12)	16(8)	degrees of freedom = 2
	Agree	110(55)	148(74)	probability = 0.000
Total		200	200	

Table 1. shows that only 13% medicos disagreed that technology was the best source of information and also 78% non medicos agreed that technology was the best source of information. This difference was found to be statistically significant. (P <0.005)

59% of the medicos and 66% of the non medico participants accepted that they are unaware of the surroundings when they are busy with the e- gadgets and this difference among the medicos and non medicos was found to be highly significant.(P<0.0001)

Among 58% of the medicos and 47% of the non medicos participants it was seen that music makes it easy to work. This difference among the medicos and non medicos was found to be statistically significant. (P<0.0001)

69% of the medicos and 55% of the non medicos agreed that social relationship was ruined by the social networking sites but this association was statistically significant.(P<0.05)

55% of the medicos and 74% of the non medico participants suggested that computer IT education should be made mandatory in higher secondary school; the difference was highly significant.(P<0.0001)

Table 2: Study subjects as per the impact of electronic gadgets on their health (n=400)

Impact on Health		Study Subjects		Chi square value, P Value
		Medical	Non medical	
I can read newspaper and TV text without glasses	No difficulty	42(21)	84(42)	chi-square = 35.1
	Slight difficulty	76(38)	48(24)	degrees of freedom = 3
	Considerable difficulty	54(27)	62(31)	probability = 0.000
	Can not read	28(14)	06(3)	
I cannot hear normal speech and have problems in hearing	Not at all	94(17)	78(39)	chi-square = 3.93
	Mild	66(33)	72(36)	degrees of freedom = 3
	Moderate	32(16)	44(22)	probability = 0.269
	Severe	08(4)	06(3)	
I am able to perform my usual activities	Effectively	92(46)	72(36)	chi-square = 15.2
	Less effectively	74(37)	60(30)	degrees of freedom = 3
	Considerable difficulty	28(14)	56(28)	probability = 0.002
	Can only manage	06(3)	12(6)	
Clear and logical thinking, Memory functioning	No difficulty	106(53)	62(31)	chi-square = 26.3
	Slight difficulty	36(18)	74(37)	degrees of freedom = 3
	Moderate	44(22)	54(27)	probability = 0.000
	Marked difficulty	14(7)	10(5)	
Physical discomfort (Eye strain, headache, back pain etc)	Not at all	48(24)	56(28)	chi-square = 1.57
	Mild	56(28)	50(25)	degrees of freedom = 3
	Moderate	76(38)	70(35)	probability = 0.667
	Severe	20(10)	24(12)	
I feel anxious, stressed or nervous/ depressed in the absence of e-gadgets	Not at all	54(27)	86(43)	chi-square = 25.9
	Slightly	84(42)	40(20)	degrees of freedom = 3
	Moderately	44(22)	60(30)	probability = 0.000
	Extremely	18(9)	14(7)	
Enthusiasm and energetic due to over use	Energetic	54(27)	76(38)	chi-square = 21.8
	Slightly weary	40(20)	62(31)	degrees of freedom = 3
	Moderately weary	76(38)	38(19)	probability = 0.000
	Extremely weary	30(15)	24(12)	
Feel angry and not able to concentrate due to over use	Not at all	36(18)	88(44)	chi-square = 34.6
	Slightly	56(28)	50(25)	degrees of freedom = 3
	Moderately	82(41)	48(24)	probability = 0.000
	Extremely	26(13)	14(7)	
Total		200	200	

When the participants were enquired about vision problems associated with use of tech devices, 27% of medicos and 31% non-medicos had considerable difficulty in reading text and watching TV without glasses and this difference was statistically significant. (P<0.0001)

Later the participants were enquired about ability to perform usual activities, of these 14% medicos and 28% non medicos faced considerable difficulties in performing usual activities.

In clear and logical thinking and memory functioning 22% medicos and 27% non medicos have moderate difficulty and the difference was statistically significant (P<0.0001)

9% medicos and 7% non medicos felt extremely anxious, stressed, nervous/ depressed in the absence of e-gadgets; association was highly significant.(P<0.0001).

When asked about feeling anxious, stressed or nervous/ depressed in the absence of e-gadgets, 9% medicos and 7 % non medicos were extremely anxious or sometimes feel depressed/ nervous and this difference among the students was highly significant (P < 0.0001)

When enthusiasm and energy level was discussed, about 15% medicos and 12% non medicos felt extremely weary after use of e-gadgets and this difference was found to be significant. (P <0.0001)

13% medicos and 7% non medicos had extreme difficulties in concentrating on things and they feel angry in usual circumstances. The difference was found to be highly significant. (P <0.0001)

Table 3: Study subjects as per the safety measures adopted while using the electronic gadgets (n=400)

Safety Measures		Study Subjects		Chi square value, P Value
		Medical	Non medical	
Do you use mobile phones while driving?	Never	122(61)	108(54)	chi-square = 4.62 degrees of freedom = 3 probability = 0.202
	Rarely	42(21)	42(21)	
	Quite often	30(15)	46(23)	
	Always	06(03)	04(2)	
Do you use mobile while charging?	Never	38(19)	24(12)	chi-square = 114. degrees of freedom = 3 probability = 0.000
	Rarely	138(69)	50(25)	
	Quite often	16(8)	90(45)	
	Always	08(4)	36(18)	
Do you know SAR value of your mobile?	Yes	26(13)	44(22)	chi-square = 5.61 degrees of freedom = 1 probability = 0.018
	No	174(87)	156(78)	
Can radiation cause cancer?	Yes	182(91)	122(61)	chi-square = 49.3 degrees of freedom = 1 probability = 0.000
	No	18(9)	78(39)	
Total		200	200	

Note- SAR: Specific Absorption Rate

Table 3 shows that, 8% of the medicos and 45% of the non medicos used mobile phone while charging and the difference was statistically highly significant(P<0.0001). Only 13% of the medicos and 22% of the non medicos knew about specific absorption rate of the cell phones but the difference was statistically significant.91% of the medicos and 61% of the non medicos were aware that mobile radiation can cause cancer and the difference was highly significant(P<0.0001)

3. Discussion

The present study was conducted at MGM Campus, Aurangabad. Among the total 400 participants, 200 were medico and 200 were non-medico students. The age of the students varies from 18 to 24 years with mean age of 21 years.Study subjects were analyzed as per their time spent on tech devices in medico and non-medico students. Out of total 200 medicos, maximum 73 % and 56 % of the participants were using the mobiles for calling and message purpose for 1-2 hours respectively. Out of total 200 non-medicos, maximum 68 % and 66 % of the participants were using the mobiles for calling and message purpose for 1-2 hours respectively.

Most of the respondents use internet for a longer period of time; the respondents spent most of their time with the gadgets for the purpose of entertainment. The degree of dependency of the respondents on their tech-gadgets is higher. The findings of the present study partially support earlier studies in other countries. In the study conducted by Amanpreet Kaur et al., Mobile phone usage among nursing students: A boon or bane for mankind, had found, higher proportion of students were using mobile phones for 2-5 years, half of them (50.3%) were using it for incoming calls and half of them were using it for sending SMS(35.3%) and outgoing calls(14.4%). [9]

Where as in another study by Jyoti Ranjan Muduli had found that, 68% of the total respondents are spending more than 6 hours per day with their technological devices and enjoy the services out of them. This also means ¼th of their time is spent with their gadgets and services. Where 20% participants are using the gadgets for 4-6 hours per day and 7% of them are using these for 2-4 hours. The amount of participants those spend 1-2 hours per day with their gadgets is very less i.e. only 5 %. [10]

It was seen that higher proportion of non medicos students as compared to medicos students were using mobile phones while charging and driving the vehicle. Maximum of 91% of the medicos and only 61% of the non medico's students were aware that mobile radiation can cause cancer.

9% medicos and 7% non medicos felt extremely anxious, stressed or sad in the absence of e-gadgets; and this difference among the students was highly significant . When enthusiasm and energy level was discussed, about 15% medicos and 12% non medicos felt extremely weary after use of e-gadgets and this difference was found to be significant.

Emad Abu-Shanab in his study also described that headache followed by irritability from continuous use of mobile devices, lack of concentration especially between students because of the frequent messages and calls.[11] The respondents using the gadgets for a long period of time have negative impacts on their health. Most of the respondents using ear phones for more than 6 hours have hearing problems compared to the others. Those respondents which are busy with their gadgets for more than 6 hours are having several problems like difficulty in logical thinking, headache, depression, anxiety, etc. The respondents of the same category also have problems in sleeping, worry excessively, are afraid of public speaking and have low consciousness. But these problems are seen less in the respondents using the gadgets below 6 hours. The problems faced decreases with the decrease in time spent with the gadgets. The present study agrees with earlier studies confirming over use of the e-devices and services leads to addiction to the gadgets and has impact on mental health of the respondents. [10]

4. Conclusion

- Most of the students using electronic devices for longer period were feeling sad, anxious, stressed and nervous in the absence of e -gadgets. This shows over dependency of students on e-gadgets.The individual who knows this limit remains happier in the long run. So the issue of this technological addiction among the youth should be addressed as youth is the foundation of any society to grow or develop
- The present studies are promising studies in the sense of that are leaving in a world of knowledge and technology.In this era of technology, the dependency of the present generation on the tech- devices and the services provided by them is in the peak position, and they can't be refrained from their use completely.
- Most of the students were using mobile phone while driving and while charging and most of the students were unaware of the specific absorption rate which is in association with one of the suspected aetiology for cancer.
- Management of knowledge, time and setting priority of life should guide our behavior in using the electronic gadgets and services. Last but not the least use of any products should be necessity driven rather than luxury driven.

5. Conflicts of Resolution

None

6. Source of Funding

None

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