

Dependence of Teenage and Adult Population over the Smartphone and Internet Services In a Tertiary Care Hospital

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ABSTRACT

Background: Today digital devices and internet has become an integral part of our life. The information is available at the swipe of the finger. The vast spectrums of services are now offered by digital devices and internet such as communication, banking, education, shopping etc. People are now becoming more and more dependent on digital devices and internet which are used as transactive memory. **Aims and Objectives:** 1. To study the dependence of subjects on digital devices 2. To compare these effects across different variables. **Material and Methods:** A cross sectional study was carried out in a tertiary health care hospital. The sample frame consisted of a) Medical students as teenagers and b) staff of a tertiary health care centre as adult population. All study participants were permanent residents of the semi-urban area. Final sample size consisted of 245 medical students and 245 staff members of a tertiary health care centre. **Results:** Students use more internet and are more comfortable with digital devices than adults. Almost 75% of study participants prefer internet for seeking information while 60 % of participants were of the opinion that digital devices are extension of brain capacity. **Conclusions:** Both teenager and adult population are dependent on digital devices and internet, but the dependency of teenagers is much more than that of the adults

Keywords: *Transactive Memory System, Digital Devices, Internet, Dependence*

Today we live in the age of information technology; through the Internet and related devices, such as smart phones, tablets, and laptops. This technology has granted us a quick and reliable access to vast stores of information. Expanded functionalities of a mobile phone have revolutionised the way we live altogether. The technology is being used in many sectors such as communication, online tracking systems, banking, shopping, financial transactions; e-learning etc. As on December 2016, India had estimated 432 million number of Internet

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users. The Internet and Internet-enabled devices have transformed our everyday lives and relationships. We entrust them with our precious personal information including contacts and images and rely on them to connect us to a vast repository of knowledge, anytime, anywhere. Digital devices along with internet are now being used as a transactive memory system and this use is changing the way people encounter and treat information. Transactive memory system is a means by which people may store information externally to be retrieved at a later time. This system allows people to recall where information is located, rather than to commit memory all the information itself. According to Kaspersky Labs, 44% people admit that their smartphones have everything they need to recall and serves as their memory. This study is an attempt to study the different usage patterns of people with regards to digital devices and how it is affecting their lives.

Objectives

1. To study the dependence of study population on internet and digital devices
2. To compare the dependence on internet and digital devices among different variables

MATERIAL AND METHODS

A cross sectional study was carried out in a tertiary care hospital in the months of June and July 2017. The sample frame consisted of a) Medical students as teenagers and b) staff of a tertiary health care centre as adult population. All study participants were permanent residents of the semi-urban area.

Study population consisted of teenagers and general adult population from a semi-urban setup who were Smartphone and internet users for a minimum period of 1 year. People with personal/genetic memory impairment issues were not included.

Sample size

Findings of previous study report that 44% people accept that their smartphones serve as a part of their memory. Considering this data with type I error (α) = 0.05 and type II error (β) = 0.1, estimated sample size was 489. It was rounded to 490. Thus final sample size consisted of 245 medical students and 245 staff members of a tertiary health care centre.

A pre structured and pre tested questionnaire was used for data collection. The questionnaire consisted of questions related to the social variables and use of internet and Smartphone by the respondents. Approval of Institutional Ethical Committee was obtained. There was no conflict of interest. The data were tabulated and analyzed using Epi Info and MS Excel. The study report has been approved by ICMR New Delhi.

RESULTS AND DISCUSSION

The study population consisted of 245 medical students and 245 staff members of a tertiary health care centre. Amongst 245 students, there were 108 male (44.08%) and 137 (55.91%) were female students. Amongst 245 staff members there were 135 (55.10%) males and 110

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(44.89%) were females. Following tables and graphs show the usage patterns of Smartphone and internet among the study population.

Figure1: Time spent on internet in a day by the study population

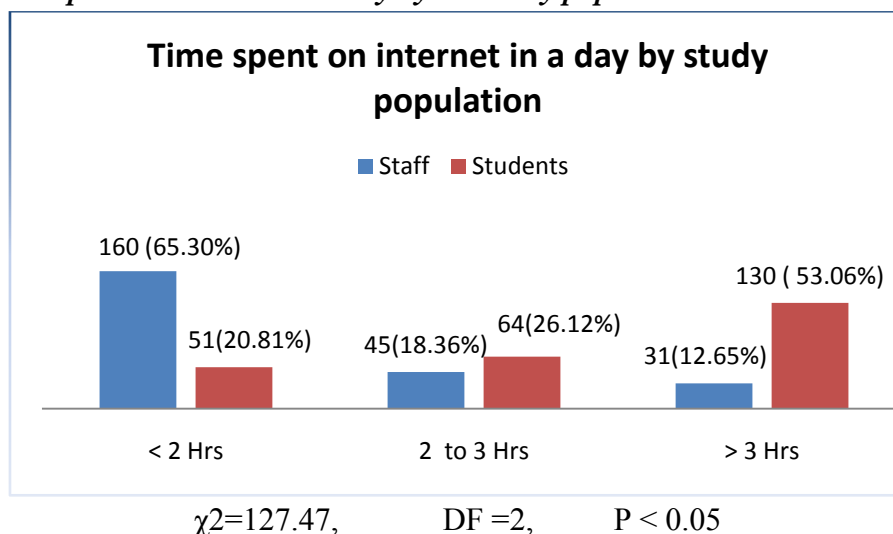


Figure 1 demonstrates time spent by the participants on internet every day. The time was measured in hours. It was observed that majority of students use internet for more than three hours in a day. Where as majority of staff use internet for less than two hours in a day. It was observed that there was statistically significant difference between the two variables.

Similar findings are reported in the study carried out by Friede E. T. in 2013 where they found that young adults spent more time on internet than the older adults.

A study carried out by Chak Katherine et al mentions that full-time students are more likely to be addicted to the Internet, because of free and unlimited access and flexible time schedules.

It shows that both adult and young participants are internet friendly, however young adults are more dependent on internet than the adult population.

Comfort level while using digital devices was found out among the study participants and the results are depicted in Table 1

Table 1: Comfort level among study participants while using digital devices

Study population	Little/Not comfortable	Comfortable	Very/Extremely Comfortable
Staff	107	59	79 (32.24%)
Students	7	52	186 (75.91%)

$\chi^2=131.36$, DF = 2, P < 0.05

It was observed from Table 1 that majority of students (almost 76%) were very/extremely comfortable with digital devices. While only 32% staff was comfortable with digital devices.

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Similar findings were observed in a study conducted by Friede E. T. in 2013 in which they observed that young adults were found relatively more comfortable in daily computer use than older adults.

In another study published by Pew Research Centre in April 2014, only 18% of adults were found comfortable learning to use a new technology device such as smartphone or tablet of their own. The lower percentage of comfort level was observed in this study as compared to our study. It may be attributed to higher age group of adults.

Table 2: Information seeking behavior among the study participants

Study population	Refer a book/ Magazine	Ask a friend about it	Search it on the internet	Total
Staff	44(17.95%)	57(23.26%)	144 (58.77%)	245
Students	11(4.5%)	12(4.9%)	222 (90.61%)	245
Total	55(11.22%)	69 (14.08%)	366 (74.69%)	490

$\chi^2 = 56.7$, $DF = 2$, $p < 0.05$.

Table 2 reveals the information seeking behaviour of the study participants. Information seeking behavior through internet was more among most of study participants i.e. in 74.69% of total study population, though it was much more in students. It was also observed that consulting a friend as well as referral of a book was minimal in students.

When Chi square test was applied, a significant association was observed between these variables. As reported in previous studies carried out by kaspersky lab, it was seen that 50% of study population across USA and 36% of study population in Europe preferred internet for seeking information.

Use of digital devices for saving of essential data by the participants and their opinion regarding digital devices as extension to brain capacity were also studied. Results are shown in Table 3 and 4.

Table 3: Use of digital devices for saving of essential data by the participants.

Study Population	Saving of essential data in digital devices		
	Yes	No	Total
Staff	124	121	245
Students	140	105	245
Total	264 (53.87%)	226 (46.12%)	490

$Z = 1.45$, $p > 0.05$

Table 4: Are digital devices an extension to brain capacity?

Study Population	Whether digital devices are extension to brain capacity		
	Yes	No	Total
Staff	144	101	245
Students	152	93	245
Total	296 (60.40%)	194(39.59%)	490

$Z = 0.739$, $p > 0.05$

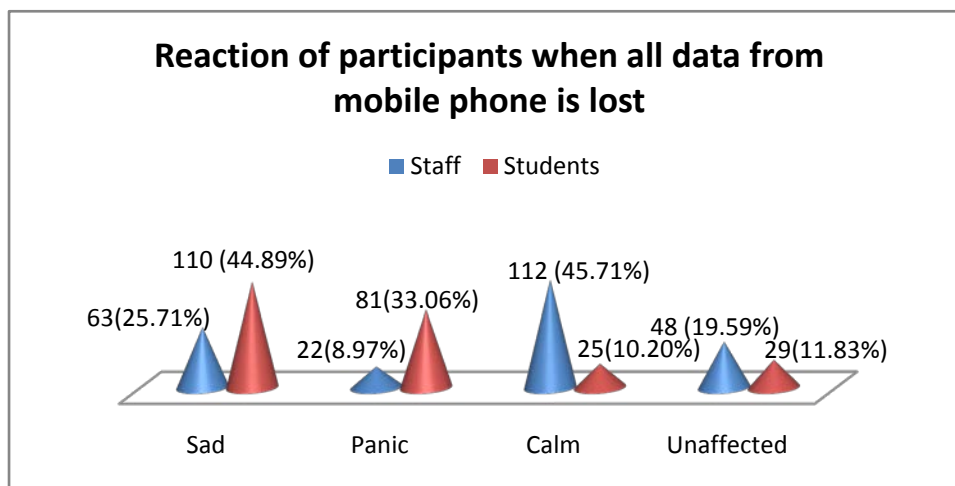
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Table 3 reveals the practice of saving essential data in digital devices by the participants. Overall 264 (53.87%) participants save essential data in digital devices. It was relatively more in students than adults. However the difference was not statistically significant after applying Z test.

Table 4 shows the response of participants to question whether digital devices are extension to their brain capacity. Overall 296(60.40%) respondents gave affirmative response. It was more in students than adults. There was no statistically significant difference between the variables.

In a study conducted by kasperskyLab, 44% Americans agreed that their smartphones had everything they needed to recall. In our study, 53.87% respondents agreed to similar question. According to Table 4 majority (60.40%) respondents were of the opinion that digital devices are extension to their brain capacity. Similar results are observed in a study conducted by Kaspersky lab in 2015 where almost 80% of the European consumers surveyed admitted that they use the internet as an extension of their brain. It can be said that digital devices or internet are becoming an important form of external memory or transactive memory which is stored outside an individual’s brain memory. Probable Reaction of the respondents was studied if they lose all the data from the phone. The findings are shown in Fig 2.

Figure 2 : Reaction of participants when all data from mobile phone is lost.



$$\chi^2 = 106.50, \quad DF = 2, \quad P < 0.05.$$

The study participants were questioned for their reaction if they lose their data in the phone. The emotional impact of losing data was studied and found to be tremendous. It was observed that the most common reaction among the students was sadness and panicky while calmness was more reported by majority of the adults. When χ^2 test was applied to above data, it was highly significant.

The results of study conducted by Kaspersky labs regarding reaction of individuals when all data from mobile phone is lost, are comparable with our study. This means that the emotional

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impact of losing data was more in students than adult population. Recent reports indicated that some on-line users were becoming addicted to the Internet in much the same way that others became addicted to drugs, alcohol, or gambling, which resulted in academic failure reduced work performance, and even marital discord and separation. However these effects need further research.

CONCLUSION

From this study it was observed that students spent significantly more time on internet and were much more comfortable with such devices than the staff. More than 50% of teenagers and adults agreed that they have all essential data in digital devices and digital devices were extension of their brain memory. However more number of children agreed that internet was their most preferred way to search any information. The emotional impact of losing data was much more marked in teenagers than adults. Thus it may be concluded that both teenagers and adults are dependent on digital devices and internet, but the dependency of teenagers is much more than that of the adults.

Recommendations

1. Further studies need to be conducted to examine the association of dependence over digital devices and internet with behaviour, cognition and health of the individuals on a larger scale.
2. The topic may be researched further with inter-group comparisons between people from urban and rural areas of the same age group and also of different age groups

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Conflict of Interest

The authors colorfully declare this paper to bear not conflict of interests

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