



## History

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### Technology Addiction (With special reference to the Internet, smartphones, tablets and social networking sites)

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**Abstract :** *This study examines the nature and extent of technology addiction of the people of Patna and its impact on their lives. Structured questionnaire, unstructured interviews and observation techniques are used by the researchers. The sample consisted of 100 people. The study utilized an instrumental way to measure the internet addiction among people; namely Internet Addiction Test (IAT) designed by Dr. Kimberly S. Young. Demographic factors (age and gender) were examined too. The result suggests that the level of*

*internet addiction among the males is more when compared with that of the females. It is also observed that people belonging to the age group of 15-25 are most prone to internet addiction. It is recommended that people decide a limit, beyond which they should not allow technology to affect their lives.*

**Key words:** *Technology Addiction, Internet Addiction, Internet, Addiction.*

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#### Introduction :

For most of us, our day starts as well as ends with our phones in our hands. The answer to even the most difficult question is just a click away. On the streets too, we can see people walking and tripping over things in front of them as they are completely lost in their telephonic conversations. Dinner time, which is considered to be a family time by many, is now no more a time when the family sits together and talks to each other, sharing their experiences, ideas and opinions. A few years back, television took the place of interaction among the family members. Dinner was served and people ate while watching television programs. But now what we see is that the dinner is served on the table, television is on and everybody is busy with their smartphones. Children prefer to play online games rather than outdoor games. Nowadays, rather than having a creative hobby, people usually get themselves busy with their smart devices in their free time. It is due

to our overdependence on our phones that words like 'Nomophobia' and 'Phubbing' have found place in the English dictionaries. The so-called selfie fever is nothing new to us. According to the Washington Post, India accounted for about half of the selfie related deaths globally in the year 2015 (TOI Tech, January 15<sup>th</sup>, 2016).

Technology is the application of scientific knowledge for practical purposes like technology addiction or the internet addiction disorder (IAD), which can be described as a severe problem that involves the inability to control or cut back the use of various kinds of technology, in particular, the Internet, Computer, smartphones, tablets and other social networking.

There has been considerable debate regarding the proper labeling of the effects of technology abuse. However, the most popular terms that are used are :

- technology addiction,
- internet addiction,
- internet addiction disorder (IAD),
- pathological internet use,
- Internet abuse,
- Internet-enabled behavior,
- compulsive internet use,
- digital media compulsion,
- virtual addiction etc.

It should be noted here that, while referring to the Internet, all Internet-enabled digital technologies are included, such as, smartphones, computers, laptops, gaming devices etc. which serve as a medium to use the internet and, therefore, share many of the addictive elements that are discussed in this research work.

#### **Objectives:**

- The main objective is to study the nature, extent and impact of technology addiction on the people.
- To find out in particular which age group and gender show more of an addictive tendency towards technology.
- To look for the facilities available for the treatment of technology addiction in Patna.
- A comparative study regarding the status of technology addiction in India and in other countries.

#### **Hypotheses:**

- Technology addiction is a serious and growing problem that needs to be studied further for a better understanding of its nature and impact on an individual's life and on the society as a whole.
- Factors such as gender, age, education, environment, income and marital status influence how people interact with technology and to what level.
- There are no institutions available, particularly for the treatment of technology addiction in Patna.

#### **Methodology:**

- This research work is based on both the qualitative and quantitative approach.
- Both primary as well as secondary data were collected.
- Hospitals, rehabilitation centers, colleges, shops etc. were visited for the collection of primary data.
- Secondary data was collected from Reports, Publications and Internet sources.
- Sample size- A total of 100 people were surveyed belonging to different age groups and genders.
- Instrument- Internet addiction was measured using the Internet Addiction Test (IAT) developed by Dr. Kimberly S. Young. IAT consists of 20 questions that measures mild, moderate and severe level of internet addiction. The score for each question is measured using a scale ranging from 0-5 (does not apply always). The total score ranges from 20-100. Score below 49 is considered to be normal, 50-79 is considered to be problematic, and 80-100 is considered to be significantly problematic.

#### **Evolution of Communication Technology**

The technology of communication developed over time and the process of evolution of communication technology dates back to prehistoric times.

It all started with Body languages where the cavemen expressed their feeling, thoughts or intentions by facial expressions, body postures, gestures etc. With time, people learned how to express themselves through articulate sound; i.e. speech. The cavemen then started inscribing on the walls of the caves in order to record their activities or knowledge. These paintings laid the foundation for the modern day alphabets. When people started moving out of the caves, a need for long distance communication developed. Smoke signals, Drum beats, Fire etc. were the earliest example of long distance communication systems. The invention of the printing press can be considered to be one of the most important events of the 15<sup>th</sup> century CE. It resulted in the revolutionisation of the way people conceive and see the world. The renaissance gave rise to many intellectual minds and the lives of the people never remained the same since then. Soon after, the invention of telegraph, telephone, radio, television and then the computer brought about another remarkable revolution. The invention of the internet can be said to have brought about another great revolution that has transformed the lives of the people to a great extent. It has made our lives much easier, simpler, more comfortable and therefore more informative in many ways. But, with that, it has also brought certain new complications in the lives of the people. Widespread obsession with technology already started by the 1930s, with the advent of radio and television during the 1960s. But this obsession with technologies exploded in importance during the digital age.

### **The Addictive Nature of Technology**

The word “addiction” is derived from a Latin term for “enslaved by” or “bound to.” “Addictions are defined as the habitual compulsion to engage in a certain activity or utilize a substance, notwithstanding its devastating consequences on the individual’s physical, social, spiritual, mental, and financial well-being.” (Young, Abreu,2011)

Addiction includes substance abuse, such as, dependence on alcohol, tobacco, drugs as well as behavioral problems such as abuse of gambling, food, sex, video games, work, shopping and internet as well.

As technology addiction or the internet addiction disorder is largely used as an umbrella term to describe a variety of obsessive or compulsive online behaviors.

The Center for On-Line Addiction has classified Internet addiction disorder into five specific types:

- Cyber Sexual Addiction – Addictions to adult chat rooms or cyberporn.

### **2. Neurological Factors**

The brain registers all pleasures in the same way, whether they originate with a psychoactive drug, a monetary reward, a sexual encounter, or a satisfying meal by the release of the neurotransmitter dopamine in the nucleus accumbens, a cluster of nerve cells lying underneath the cerebral cortex.

In nature, rewards usually come only with time and effort. Addictive drugs and behaviors provide a shortcut, flooding the brain with dopamine and other neurotransmitters. In a person who becomes addicted, brain receptors become overwhelmed. The brain responds by producing less dopamine or eliminating dopamine receptors. As a result of these adaptations, dopamine has less impact on the brain’s reward centre. People who develop an addiction typically find that, in time, the desired substance no longer gives them as much pleasure. They have to take more of it to obtain the same dopamine “high” because their brains have adapted—an effect known as tolerance.

### **3. Psychological Factors**

There are various assumptions regarding the causes that lead to the development of these obsessive or compulsive online behaviours among individuals. These are:

- The feeling of sadness, stress, depression, loneliness or anxiety which can make people turn towards Internet to seek solace and escape.
- Those who have a history of other types of addiction, such as addictions to alcohol, drugs, sex and gambling are at a higher risk.

### **Symptoms**

- Loss of interest in hobbies
- Inability to turn off the phone or PDA

- Keeping devices near or at easy access all the time
- Neglecting friends and family and avoiding social interactions
- Neglecting sleep to stay online
- Being dishonest with others to conceal the extent of involvement with the Internet

## Effects

### 1. Effects on the brain

As the brain sciences continue to advance, the evidence of neuroplasticity strengthens. Though different regions of the brain carry out different mental functions, the cellular components do not form a permanent structure. They are flexible and tend to change with experience, circumstance and need. So, the way we think, perceive or act are neither entirely determined by our genes nor by our childhood experiences. They keep changing with circumstances and situations.

Also, strengthening of certain specific pathways which we are exercising leads to the weakening of those we are not exercising. So, the circuits that support intellectual functions and pursuits begin to break apart and the brain recycles the disused neurons and synapses for other, more pressing work. We gain new skills and perspectives but lose the old ones. In WhatsApp messages, status updates, like ad, comments, emails etc., our brain forgets to transfer the information from our short term.

- Cyber-relationship Addiction – On-line friendships made in chat rooms, MUDS, or newsgroups that replace real-life friends and family.
- Net Compulsions – Compulsive online gambling, online auction addiction, and obsessive online trading.
- Information Overload – Compulsive web surfing or database searches.
- Computer Addiction – to Obsessive computer game-playing or to programming aspects of computer science (Bellamy Al, Hanewicz C. 2001).

Different types of technology addiction may have different causes, symptoms as well as outcomes. We don't know what those differences are as not enough research work has been done on it.

### How Is the Internet Addiction Similar to Other Addictions?

According to Dr. Young *et al* (2011) , to meet the criteria for what might closely resemble a substance-based addiction, there must be:

1. Engaging in an intoxicating/pleasurable behavior (with an intention to alter mood and consciousness),
2. A pattern of excessive use,
3. Negative or deleterious impact in a major sphere of living, and
4. The presence of tolerance and withdrawal features.

According to Greenfield, a simple algorithm of addiction criteria that is useful is DIAR, which stands for :

- D – desire to stop,
- I – inability to stop,
- A – attempts to stop and
- R – Relapse

### What Makes The Internet Addictive?

#### 1. Nature of The Internet

- (a) **Content factors** : The availability and variety of previously inaccessible, illegal, or hard to find content enhances the Internet's attractiveness considerably (Young, Abreu, 2011).
- (b) **Process and access/availability factors** : We can have access to unlimited contents 24/7 from any place and that too at an affordable cost. Also, the ability to access hidden or subconscious aspects of one's personality or persona that are not normally accessible, appears to have strong addiction facilitating effects (Young, Abreu, 2011)
- (c) **Reinforcement/reward factors** : The reinforcement/reward factor seems to be the most significant element in



contributing to the addictive nature of the Internet and other digital media technologies. A pleasurable charge is received with both an unpredictable frequency and an unpredictable saliency.

- (d) **Gen-D factors** : When it comes to Internet and digital technology, today's children and adolescents have been raised with this technology and are more comfortable and confident while using it. They are Generation-Digital, or Gen-D. This further contributes to possible abuse and addiction to these technologies (Young, Abreu, 2011).

## 2. Emotional Effects

- Feelings of guilt
- Anxiety
- Depression
- Dishonesty
- Unable to keep schedules
- No sense of time
- Isolation
- Defensiveness
- Agitation
- Social withdrawal

## 3. Physical Effects

- Backache
- neck pain
- Headaches
- Blurred or strained vision

## 4. Financial Effects

Internet addiction can also lead to bankruptcy, especially if the time spent online is focused on shopping, gambling and gaming.

## 5. Cybercrime

Addicted people can be lured into the negative use of internet. Cybercrime is a term for any illegal activity done online. Cybercrimes include crimes like network intrusions and the dissemination of computer viruses, as well as computer-based variations of existing crimes,

such as identity theft, stalking, bullying and terrorism.

## Diagnostic Criteria For Technology Addiction

The first serious proposal for diagnostic criteria was advanced in 1996 by Dr. Young, modifying the DSM-IV criteria for pathological gambling. Since then, variations in both name and criteria have been put forward to capture the problem. (Cash, H., Rae, C.D., Steel, A.H., Winkler, A. 2012)

There has also been a variety of assessment tools designed for evaluation purpose. Young's Internet Addiction Test, the Problematic Internet Use Questionnaire (PIUQ) developed by Demetrovics, Szeredi, and Pozsa and the Compulsive Internet Use Scale (CIUS) are all examples of instruments to assess this disorder.

## Treatment

Since technology addiction is an emerging problem and is not very well-studied, there is no universally accepted treatment for it. Different clinics working on Internet addiction disorder have given various guidelines for its treatment.

### A. Psychological Approaches

#### (1) Cognitive Behavioral Therapy (CBT) :

CBT is a popular treatment based on the premise that thoughts determine feelings. Patients are taught to monitor their thoughts and identify those thoughts that trigger addictive feelings and actions while they learn new coping skills and ways to prevent a relapse.

#### (2) Motivational Enhancement Treatment (MET) :

This is a less popular treatment. It aims to help patients acknowledge that they have a problem and they need to change their behavior. Besides, there therapy groups, Community Reinforcement and Family Training, Reality Therapy which (RT) are also the most advised way for treatments.

Out of various psychological treatment, the Cognitive Behavioural Treatment is considered to be the most effective one.

## B. Non-Psychological Approaches

Clinicians also use psychopharmacology to treat IAD despite the lack of treatment studies addressing the efficacy of pharmacological treatments. Drugs have been used to relieve the patient from the effect of Internet Addiction (e.g. depression and anxiety) and it has also been found effective. A few authors mentioned that physical exercise could compensate the decrease of the dopamine level due to decreased online usage.

## C. Multimodal Treatment Approach

A multimodal treatment approach is characterized by the implementation of several different types of treatment – in some cases even from different disciplines, such as, pharmacology, psychotherapy and family counselling simultaneously or sequentially.

Most addiction specialists and treatment/rehab centers have tailored their own treatment methods for addictions related to technology.

In Disha rehabilitation centre, there is a 30 day program for the patients.

Psychiatrists at Paras HMRI hospital and Ruban hospital practice a multimodal treatment approach where, along with psychotherapy and family counseling, drugs are also given to the patients in order to relieve them of their depression and anxiety caused as a result of withdrawal from the internet.

What makes the internet addiction different from other addictions is that the psychologists do not completely deprive the addicts of the use of internet but rather make the patients have a controlled and balanced Internet usage

## Technology Addiction in Other Countries, India And Bihar

Technology addiction, or the related term Internet addiction disorder (IAD), is classified as an official disorder in a number of other countries, including America, Australia, China, Japan, Italy, Japan, Korea and Taiwan.

In Bangalore, India's premier mental health hospital has opened its first "technology de-addiction clinic" in June 2014. SHUT Clinic (short for Services for Healthy Use of Technology) is an internet de-addiction center started by the National Institute of Mental Health and Neuro Sciences (NIMHANS) offering counselling to

addicts to help them replace excessive technology usage with healthy activities. In July 2014, an NGO in Delhi, Uday foundation, has also started the Centre for Children Internet and Technology Distress.

In Patna, there are no such technology deaddiction centers as of now, but people do consult psychiatrists seeking help for internet addiction disorder. According to Dr. Manish Kumar, Psychiatrist at Paras HMRI Hospital, around 15-16 patients of internet addictions consult him per month.

## Empirical study

The result of data so collected is presented in the form of a graph and has been analyzed and discussed in the following paragraphs:

In the above figure, 'X' axis shows the score groups.

Score between 20-49 means that the person is an average online user

Scores between 50-79 means that the person suffers frequent or occasional problems because of the internet.

Scores between 80-100 means that the person suffers from significant problems in life because of the internet.

'Y' axis shows the percentage of people. According to the data collected, 33% of people are average online users, 47% of people suffer frequent occasional problems because of the internet and 20% of people suffer significantly in life due to the internet.

It was also observed that the people belonging to the age group of 15-25 showed the addictive tendencies the most.

It was also noted that males showed more addictive tendency towards the internet as compared to the females.

## Findings :

- Internet addiction does pose a serious threat in all aspects of an individual's life and in society as a whole and it's a growing problem and if steps are not taken, it will soon become an epidemic.
- People do know that technology does have some negative impact and they feel it but they don't know what to do about it. In this digital

age, having a phone, computer, smartphone is a necessity. But it is difficult to draw a line in order to have a proper balanced life.

- There are no institutions available specifically for the treatment of technology addiction in Patna but the psychiatrists and de-addiction rehabilitation centers are there to help people out.

**Suggestions :**

- Here are a few tips to help stay in control over the devices.
  - Unplug for 30 minutes.
  - Focus on the people around.
  - Find more meaningful ways to spend your time. Try taking up a new hobby.
  - If you feel that someone you know might be overusing their technology, you may want to let them know (unattributed 2016).
  - One of the valuable suggestions was given by Dr. Vijay Kumar, lecturer at the Department of Sociology in Patna

University, that the internet data plans should not be prepaid ones but rather postpaid ones, because it is often seen that in order to utilize data to the fullest, people use more and more of internet so that the data do not lapse.

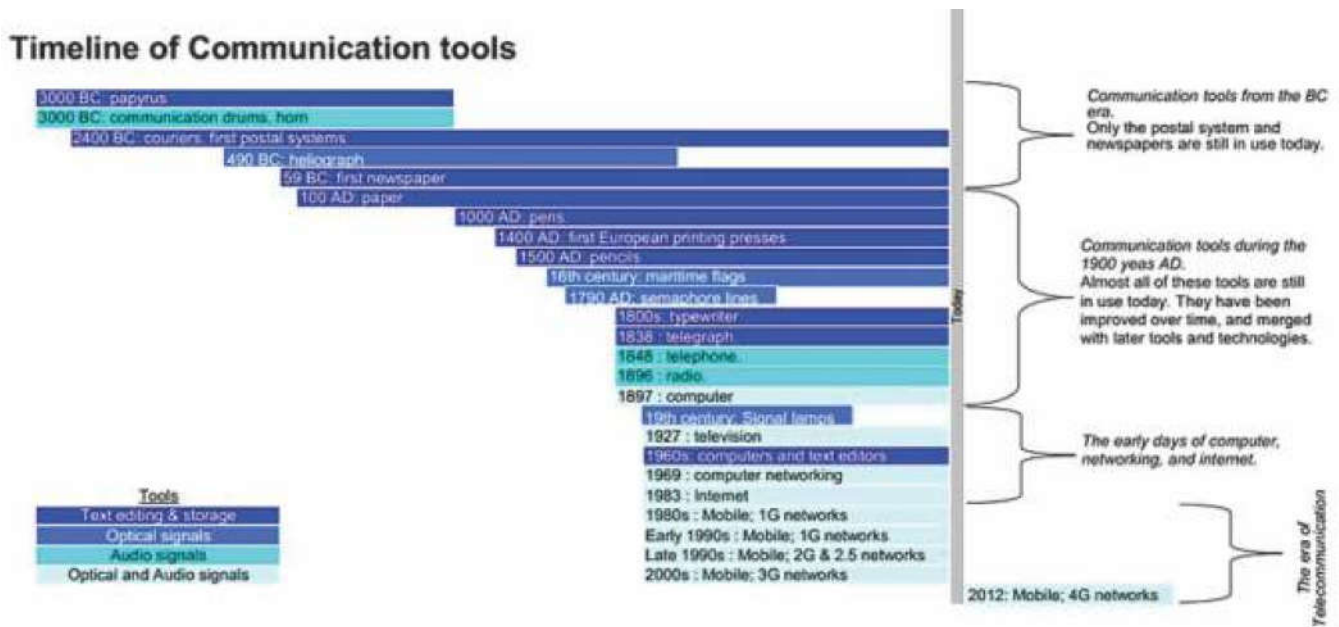
**Conclusion :**

We are in a digital world and there is no turning back. The internet and the internet enabled devices are a part of our lives and we are very lucky to have them. Internet is a rich, magical and beautiful place, from where we can have all the information that we can ever have. But unintentionally, internet has caused certain problems and we need to recognize that. We just have to be aware that internet is not a benign thing. It does have certain downsides. It is up to us to take the upsides as much as possible limiting the downsides.

According to the Nobel Peace Prize Laureate, Christian Lous Lange, “Technology can be a useful servant but a dangerous master.”

So, it is up to us to decide a limit beyond which we should not allow technology to affect our lives and be our master.

**LIST OF FIGURES**



**Fig. 1. Evolution of Communication Technology**

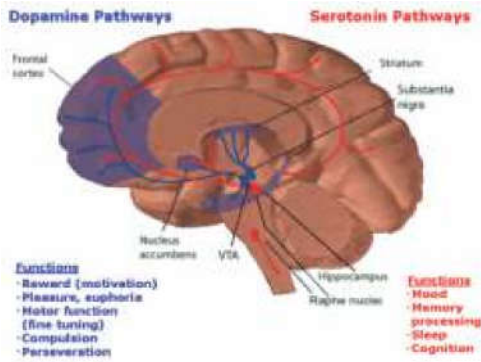


Fig. 2. Pathways and functions of dopamine and serotonin



Fig. 3. NIMHANS and SHUT logo

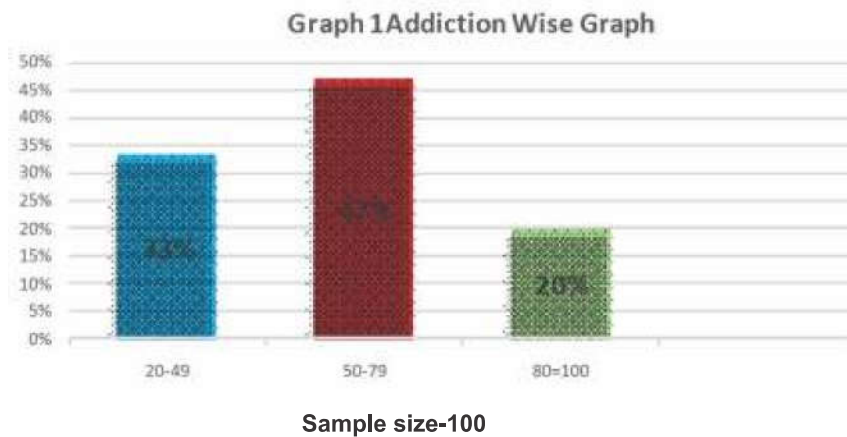


Fig. 4. The level of internet addiction among people as measured by the Internet addiction test by Dr. Kimberly S. Young.

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