

## **CHAPTER 6: DISCUSSION**

The aim of this study is to understand the nature of internet overuse in terms of addictive disorder or compulsion. Internet is widely used in all professions across all age groups and genders. As per their requirements individuals use or overuse internet. When the usage crosses the mark of general level of 'healthy' use of internet, it is entered in the category of overuse of the internet. How can we decide healthy and unhealthy use of internet or use and overuse of internet? Research suggests that when individuals use internet for productive reasons like work and academic purposes, it is considered as healthy usage of internet. When they use internet for recreation and fun or to kill the time because of which they imperil different facets of their lives, it is labelled as unhealthy use of internet or overuse of internet. A psychological tool is required to test or measure the effects of certain factors in any research. For this research no standardized tool was available to measure the effects of internet overuse. Though many researchers have explored this area of internet overuse and used different tools to study the effects of internet overuse, these tools have many limitations and they are not covering all aspects of internet overuse like physical, psychological, social, functional, and relationship impairment and other consequences of internet overuse. Overall, the studies on internet overuse so far have reported that a variety of instruments used to measure the nature of internet overuse do not give a clear and complete assessment of internet overuse prevailing in adolescent as well as adult populations. Therefore, it is needed to utilize actual clinical criteria to distinguish pathological behaviours or addictive behaviours from online maladaptive behaviours which are related to certain personality traits in individuals using internet heavily (Charlton & Danforth, 2010).

### **6.1 Tool construction/ Development of internet overuse scale**

A new tool was developed through this research to explore the effects of internet overuse and to get clarity whether it is an addictive disorder or a compulsion or both. Tool construction was a long learning process where many experts gave their valuable suggestions and inputs. Pilot study and main study were conducted. After pilot study seven factors emerged with 51 items which were used for main study. The independent variables for this research are hours spent on internet, age, gender, occupation, education of the participants, source and purpose

of internet use while the dependent variables are psychosocial, physical and behavioural outcomes of internet use. Except gender, in all other demographics 3 to 4 groups were made on the basis of the variations each demographic represents through which we can widely explore the effects of internet overuse.

Many researchers have studied the relation between loneliness and internet overuse and it is evident that lonely individual use internet more, especially to get socialized and they enjoy online relationships more than offline (Chak & Leung, 2004; Landers & Lounsbury, 2006; Moody, 2001; Morahan-Martin & Schumacher, 2000; Scealy et al, 2002). As they increase the time on internet, they start overusing the internet and face the consequences of that. It is also proved that individuals who have low self-esteem tend to use internet more as they feel more confident online than offline. They too experience the adverse effects of internet overuse. They use the internet to improve their social skills and developing social relations (Murali, & George, 2007). There is positive significant correlation between loneliness and factors of internet overuse and negative significant correlation between self-esteem and factors of internet overuse. This research proves the same; however, the direction of the relationship between loneliness and internet use is hard to determine (Morahan-Martin & Schumacher, 2003). Once individuals start using internet as an alternate for real life social communication, they may be caught in a vicious cycle and using internet to avoid the pressures of daily life (Whitty & McLaughlin, 2007). The psychometric properties of the scale now validate the scale items to be used for measuring internet overuse.

Main study was conducted on 2124 participants by using three tools: Scale for internet overuse (Developed by the researcher), University of California, Los Angeles (UCLA) Loneliness scale by Russell DW (1996) and Rosenberg Self-Esteem Scale. UCLA Loneliness scale and self-esteem scale were used to establish criterion validity of the newly constructed internet overuse scale. Chronbach Alpha is calculated to establish the internal consistency of the items used in each factor of the scale. At the end of the main study, factor analysis was done again and 14 factors emerge after that. Four factors were eliminated as they had low factor loading and lack of meaningfulness. One factor had only one item so it was eliminated too. Names were given to the remaining nine factors with experts' guidance and 43 items left in final tool on internet overuse. Analysis of variance was done between different demographic groups and factors of internet overuse. Second factor analysis was conducted to find the stable factors of the scale of internet overuse. All nine factors are retained after second factor analysis. One item from the factor functional impairment is eliminated and two

items from the factor social impairment were eliminated because of low factor loading after this last factor analysis. Total items after second factor analysis are 40. The Eigen value for all factors is more than one and the Chronbach Alpha of these factors is more than .06 which shows the factors are reliable to measure the nature of internet overuse. In order to test the conjectured hypotheses based on demographic variables, analysis of variance was carried out. The results found for testing the hypotheses are discussed in the following section.

## **6.2 Internet overuse: addictive disorder or compulsion or both**

The major objective of the research was to examine if internet overuse fulfils the criteria for addictive disorder or compulsion or both.

Earlier researchers have partly adapted the criteria of internet overuse from DSM-IV and they found that internet overuse was highly correlated to various facets of one's life like occupational, social and personal. It is also correlated with substance abuse. Internet addictive disorder is not chemical addiction but behavioural addiction and if the criteria of internet addictive disorder are compared with that of gambling disorder which is the only non-substance use disorder in DSM-5, it can be seen that in gambling disorder a person needs to gamble with increasing amounts of money in order to achieve the desired excitement. Likewise, a person who overuses internet has to increase the amount of time to get the desired excitement. Individuals who overuse the internet, feel restless or irritable when attempting to cut down or stop using internet, same as individuals suffering with gambling disorder feel. They make unsuccessful attempts to cut, control or stop using internet. Individuals overusing the internet are preoccupied with the thoughts of internet, use internet when they feel helpless, guilty, anxious or depressed. They lie to their family and friends about the time they spend on internet and the kind of content they access on internet. They have put their significant relationship, job, or educational or career opportunities at stake because of internet.

Further, DSM-5 mentions that the rationale for moving a behavioural disorder to this section of DSM-5 includes scientific evidence that indicates gambling activates areas of the brain similar to the brain's reward systems that are activated by substances. Earlier researchers found that 'natural' positive stimulants like food and water activates the reward circuit in the brain. These natural stimulants are must for our survival. However, 'unnatural' stimulants can be more powerful; such as drugs and alcohol, or gambling. These unnatural stimulants cause people to neglect work, food and health. The reward deficiency hypothesis suggests that those who do not get enough reinforcement and satisfaction from natural rewards use

substances to get greater stimulation of reward pathways (Blum et al, 1996). The same reward system works with individuals who overuse internet. Internet use provides same level of stimulation provided by alcohol or drugs and the gratification is immediate. While internet overuse differs from other addictions like alcohol and drug abuse in terms of physical problems but similar in the effects on social interactions like loss of control, cravings, withdrawal, loneliness, relationship impairment, academic or job loss, and financial problems (O'Reilly, 1996). Individuals overusing internet significantly face the consequences of it in their lives. Overuse of internet decreases one's productivity, deteriorates job and educational performance, and creates disturbance in personal life (Soule, Shell, & Kleen, 2003; Young, 1996). Present research agrees with this view.

This research shows that internet overuse is both an addictive disorder and compulsion. Participants experience the symptoms of addictive disorder like withdrawal where they feel anxious, irritable, angry, restless, and depressed when they are away from internet. They also experience compulsive nature of internet overuse when they are not able to use internet. Their productivity at work decreases when they are online and they are not able to control their internet use though they want to. They feel happier online than offline. The difference between substance use disorder and internet overuse is, the person doesn't consume or inject any substance in internet overuse. It is quite similar to gambling disorder which is an addictive disorder as per DSM-5. There is a difference here too. In gambling disorder the money is a stimulant and a person gambles with increasing amount of money to get the same excitement while in internet overuse there are many activities which stimulate the person to stick to internet and spend increasing amount of time on internet. However, money is also involved in online gambling which can give same level of excitement people suffering with gambling disorder get.

### **6.3 Hypotheses testing**

#### **Differences among groups using internet for different duration of time**

It is hypothesized that there will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in terms of hours they spend on internet.

This hypothesis is accepted.

It is evident from many researches that time spent on internet is a very important factor for a person to get addicted to it. Previous researches too found that individuals who are addicted

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to internet spend about 40 to 80 hours on-line per week and suffer with negative effects like disturbed sleep patterns, increased level of fatigue, relationship, and occupational impairment as well as physical symptoms because of computer use for longer hours (Young, 1999). Addicts use the internet for 38 hours a week on an average and they use it for purposes other than academic or related to employment which results in poor academic or work performance and disputes among couples. Some of them were also getting the treatment for various disorders like substance use disorder, gambling disorder, or eating disorder. They exhibit the same excessive behaviour, looking for a device to help them relax which they had shown in prior addictions.

Asian countries like South Korea have produced very good research on internet overuse. They consider internet overuse a serious health issue. Many South Korean children are afflicted and require treatment. An average South Korean high school student spends about 23 hours each week gaming and so many are at the risk of addiction and need treatment. China is facing the same; many teenagers meet the criteria for internet addiction. As a result, China has restricted computer game use; allowing maximum 3 hours of daily game use. Internet overuse could be mild, moderate or severe depending upon the degree of damage of normal activities. Individuals who use internet for few hours may experience fewer consequences of internet overuse. Those who use internet for more hours, say more than 10 hours a day, are severely affected with its consequences like loss of relationships, or career opportunities than those who spend fewer hours on internet. In these countries, children use internet for games and fun while in United States of America, people use internet to avoid the symptoms of other underlying disorders like depression or loneliness. In South Korea and China, internet overuse is a cause while in US it is an effect but in both cultures people spend more time on internet which leads to the consequences of internet overuse (American Journal of Psychiatry, 2008).

This research shows that individuals who use internet for more than five hours a day are facing the negative effects of internet overuse more than those who use internet for less than five hours a day. They feel irritated, anxious and angry when not able to use internet. Their social and functional life is impaired, when they try to cut their internet use, their fingers move voluntarily or involuntarily. They are not getting enough sleep and not interacting with family and friends like before. Participants who use internet for more than five hours a day are experiencing these effects. All three groups are significantly different from each other on withdrawal and enhanced socialization. Individuals, who are using internet for more than 5

hours daily, especially for socialization and recreation, are more vulnerable to get addicted to internet than those who use internet for 2 to 5 hours daily. They are facing occupational and relationship consequences more than other individuals with less time on internet. This indicates that the more time individuals spend on internet, more consequences they will face in their personal, social, and work life. Same is for the factor perceived control of internet. People, who spend more time on internet, also try to control their use of internet more because they do not want to sacrifice their sleep for internet and are not ready to compromise their work. It could be said that people who overuse internet, they know the consequences of it and they constantly try to control their internet usage as it is costing them not just money but more than that it is costing them their social life, relationships, work, education, sleep, daily routine and some psychological and physical problems. Online gambling is another issue which is a kind of recreational activity people indulge in through internet and needs treatment as it is needed for gambling disorder. All three groups are obsessed with internet; they are not significantly different from each other on this factor of obsession with internet. It implies that no one can deny the benefits of internet irrespective of the time they spend on internet. Once people start using internet, they are bound to get obsessed with it. How much time one spends on internet is one of the important criteria to measure the nature of internet overuse.

### **Differences among groups using different websites/applications on internet**

It is hypothesized that there will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in terms of different websites/applications they surf/use on internet. This hypothesis is accepted.

There are no subtypes of internet addictive disorder which are well researched. There are many websites or application provide entertainment and helpful for leisure activities and it is possible to have more applications in the future. People are using different websites and applications for productive as well as non-productive purposes. Number of internet users rose in millions from the year 2000 onwards. People are using Google for searches, YouTube for videos and Instagram for sharing pictures, Whatsapp for chatting and many other applications for dating, music, shopping and banking. One thing is common among the usage of these websites/applications: services are available, accessible and efficient and change of location is no longer a barrier to meet people through social networking sites be it for professional or non-professional reasons.

There are five groups, in this research, based on the websites they surf on internet for various purposes. Participants, who refrain from mentioning the websites they use on internet, are getting affected the most with the adverse effects of internet overuse than those who chose the websites mentioned in the demographics. It could be said that participants of this group use the websites/applications which they hesitate to mention like pornographic sites or dating apps. It is also possible that they use other sites which they did not bother to mention, those sites could not be objectionable and they are doing some productive work on internet but the result shows that they are affected with the factors of internet overuse the most. Choosing “other” option and not mentioning the websites/applications implies that participants could be using websites which they do not want to mention. They could be using those websites for activities which they do not want to disclose but higher mean value shows that and they are using those sites for entertainment. Earlier researchers found that when individuals are involved in non- productive activities on internet, chances are more to get addicted to it rather than using it for productive reasons. All five groups do not differ significantly on the factor obsession with internet, as with the groups on the basis of hours, irrespective of the time they spent on internet, or the websites they surf, all are obsessed with internet. According to this research, people use YouTube, Twitter and Google for recreation. These are a good source of recreation for people while Whatsapp, Facebook and Instagram are used for socialization. When people use internet for recreation, socialization, playing games, watching movies, music or other objectionable activities like watching pornography or indulging in virtual sex, they get addicted to the internet. Participants, who use Whatsapp, Facebook and Instagram, try to control their internet use more than others. They are using these sites for socialization and it could be said that socialization is consuming more time than other recreational activities. They try to control their internet overuse as they do not like to sacrifice their sleep or getting late for work but they are not able to avoid internet and suffer with the consequences of internet overuse. There is no fix time like job hours for people to chat on internet. They go on for day and night, their mobiles are on for the whole day and night anywhere, various applications are available on their phones and many are socializing with many others through different applications at the same time. It is very convenient to socialize from anywhere in the world but at the same time it is hazardous for one’s social life with other facets. It could be said that in coming years more websites/applications will be available for same purposes like chatting and on the basis of attractive features they provide; they could be a factor for individuals to get addicted to the internet.

### **Differences among groups using internet for various purposes**

It is hypothesized that there will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in terms of purposes for which they use internet. This hypothesis is accepted.

Internet use can be very productive but when it becomes compulsive behaviour, it can interfere with daily life, work, and relationship. A person feels more comfortable with online friends rather than real ones and can't stop playing games, but it has negative consequences in life. Individuals are using internet for different purposes and for varied time period. Individuals who use internet in unhealthy ways are "internet dependent" who are attracted to interactive applications, such as chatting, online shopping and games, whereas those who use internet in healthy way, are nondependent individuals who use the internet especially for sending emails, looking for information and other productive work (Whang, Lee & Chang, 2003). There are two extremes. Certain online activities are productive and certain are compulsive but both can lead to an addiction if internet is used beyond limits. People who overuse internet increase the amounts of time to get the same level of satisfaction; this is called tolerance and the unpleasant feelings that occur when the activity is discontinued, is called withdrawal. Individuals use internet to avoid withdrawal symptoms, gradually they have to increase the time on internet to get same excitement and the cycle goes on. They use internet to avoid negative feeling, not for some productive or non-productive purposes. This will result in poor performances at work or school and marital discord. The same thing happens with substance use disorder. Once individuals get addicted to a substance, they consume it not because of party, celebration, or social gathering; they consume to avoid physical withdrawal symptoms.

Sample was divided in three groups on the basis of purpose of using internet: professional, recreational, and both. It is found by many researchers that individuals who use internet for recreation can get addicted to internet more than those who use internet for productive reasons like their profession. This research agrees with this finding. Participants who use internet for recreation are suffering more from the factors of internet overuse like withdrawal, social impairment, functional impairment, compulsive behaviour, occupational and



relationship consequences, than those who use internet for professional reasons. Participants, who use internet for both recreation and profession, are obsessed more with internet than others. Individuals, who are using internet for recreation, feel their internet use is beyond their control, their productivity at work has hampered and they feel more of themselves on internet than in real life. It can be said that they enjoy online world more even though they know its consequences. These three groups do not differ significantly on functional impairment. The symptoms of functional impairment according to this research are, individuals sacrifice their sleep for internet, they have reduced interaction with family and friends, they do not eat food properly, have more fun online, thinking about internet when offline, neglect household chores to spend more time online. Some of these symptoms could be related to individuals who use internet for professional reasons. This is a competitive world and people are working for longer hours to get success. Technology and for that matter internet is used widely in almost all sectors and fields. Professionals use internet widely and use internet for fast, effective work. To achieve target and meet the deadlines they work for longer hours and sacrifice their sleep, just eat food for the sake of it but not enjoying it, or sometimes skip their meals, do not spend enough time with family and friends, and neglect some of the responsibilities. Professionals want to spend time with family but they can't because of work, they want to enjoy food but can't because of work pressure, they do not like to sacrifice sleep but they have to, while people who are using internet for recreation, they do all these things willingly. They sleep for few hours, say less than four, to be on the net. They eat food half-heartedly; avoid family and friends because they are more comfortable with online relations. Individuals face consequences of internet overuse whether they use it for productive or non-productive reasons but when non-productive use increases beyond certain limit, severity of consequences increases and usage of internet for productive reasons decreases.

### **Differences among groups using various gadgets/tool/equipment to access internet**

It is hypothesized that there will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in terms of different equipment they use to access internet. This hypothesis is rejected.

Everyday new equipment is introduced or they are updated to a better version. People have stopped wearing wrist watch as mobile phone shows them time. Individual camera is not required as it is there in mobile phone and mobile companies focusing more on the quality of camera so people can enjoy photography. Clicking pictures of one's own self is a new craze

among people and they look for better camera while buying phones. Landline phones are disappearing; calendars are not required as it is provided in phone. Calculator is another facility in one's mobile phone and calls and messages are always there. Now internet is available in mobile phones through which the world is on one's fingertip. Anything and everything is available on internet within few seconds. As it is discussed earlier, internet and smart phones have their own advantages. Individuals do not have to go out to pay their bills or withdraw money, they can do it through internet, net banking. Especially for senior citizens internet is a boon. One doesn't have to be dependent on any expert for information, a person can learn on his own by using internet. Many online courses are available and in many courses, exams are conducted online so students do not have to commute long distances and face hassles. People can get education while they are working and equip themselves with better education and better future.

There are a few equipment like smart phone and Google glasses which could affect a person's level of internet overuse. People stick to their mobile phones for hours and ignore their day to day routine, avoid social relations and responsibilities and they are afraid of living without their cell phones. There are many other terms coined from time to time to describe people's dependence on devices, especially mobile phones. The fear of getting disconnected from the online world provides greater motivation to a person to check the phone frequently. The lives of cell phone addicts is totally dependent on their phone which makes them feel socially connected and without their cell phones they feel vulnerable which trigger certain negative moods and maladaptive behaviours.

Cell phones are as addictive as slot machines are. The response, gratification, and excitation which users get immediately, combine to make the user want more. Though there is no sound of notification from the cell phone, addicts will start pressing the buttons or scroll the mobile screen up and down just to feel safe and secure. Individuals are using cell phones even in dangerous situations, such as driving. In such cases, cell phone usage should be considered as obsessive-compulsive disorder (OCD) traits rather than addiction because OCD is a reaction to incoming messages while cell phone addiction characterized as a back-and-forth communications through cell phones. But if a person frequently checks the phone without having an incoming call, message or mail then he is suffering with cell phone addiction. This dependence on one's mobile phone can severely affect their mental health.

It seems that devices could be responsible for internet overuse but that is not true. This research shows that equipment is not responsible for internet overuse. It seems that readily available equipment could lead to addictive behaviour but it is not because of the equipment per se, it is because of the content available in it and the type of facility it provides. When cell phones were used for calls and messages only, people were attached to them for the whole day and even sacrifice their sleep but it was manageable. Messages and calls were paid. One more feature “internet”, is added in cell phone and the world has changed. Calls and messages are free and in meagre amount, people get whole world on their device’s screen. It is inviting a whole lot of problems which leads to compulsive use of the internet through different devices. It is cost effective and available in many languages so there is no restriction for using internet.

The mean difference in the scores of internet overuse factors between the use of different equipment individuals use to access internet shows individuals use mobile, laptop, computer and tablet to use internet for various purposes. It is revealed that these equipment make no difference in using or overusing internet, they are not responsible for individuals to overuse internet. No matter which device a person uses, if internet is accessible in that device, it gives same gratification, recreation, and satisfaction which are enough reasons to get addicted to the internet. Three groups of equipment show no significant difference from one another. Individuals get addicted to the internet whatever device they use. Time spent on internet and the content accessed on internet, are two important criteria to measure internet addictive disorder.

There is only one factor, internet as a source of recreation, on which participants who use mobile, laptop, tablet and computer are significantly different from the other group who do not use computer to access internet. It could be said that if more gadgets are available, individuals will be involved in more recreational activities. It is observed that at workplace employees use two devices, their mobile and office’s computer or laptop. Internet is available on both. They do professional work on office computer or laptop and simultaneously playing games or chatting through mobile or using office devices for both productive and non-productive activities. Easy-to-use equipment makes it comfortable for individuals to use it more for entertaining activities but apart from recreation, equipment is not a reason for them to overuse internet.

### **Differences among various age groups in internet use**

It is hypothesized that there will be a significant difference in psychosocial behavioral outcomes of internet overuse among different age groups. This hypothesis is accepted.

Internet is a source of excitement, freedom, and friendship. Individuals spend time on internet for such goals. Nowadays, the adoption of digital technologies is known to be higher in young adolescents than adults. Different age groups differ in terms of motivation to use the internet. Young adolescents express their identities by revealing personal information and older adolescents express it through connections and social conversations (Park et al., 2013). Internet overuse is affecting in both positive and negative ways to individuals of all age groups but several groups are more vulnerable to IAD, such as singles, young males, college students, gays, middle-aged females, and the less educated. Individuals, who are suffering with depression, bipolar disorder, sexual compulsion, and loneliness, are more vulnerable to internet addictive disorder. They could be heavy internet users. They use the internet to modulate negative moods (Morahan-Martin, 2005). Youngsters are main consumers of digital contents. They are the centre of digital marketing. New products are designed especially to appeal their emotions and values. Youngsters adapt the digital technology quite early and use it heavily. Heavy internet use during the sensitive crucial period of adolescents' psychological developments can make them more vulnerable to internet abuse (Chou, Condrón & Belland, 2005; Tsai & Lin, 2003).

There are three age groups in this research: 15-25 years, 26-35 years and 36-50 years. The youngest group is significantly different from other groups on withdrawal, social impairment, obsession with internet, and enhanced socialization. They use internet more for socialization and face the consequences more than the other two groups. All three groups significantly different from each other on: functional impairment, compulsive behaviour, recreation, and occupational and relationship consequences, participants of 15 to 25 years of age are suffering from them the most. The middle age group, 26 to 35 years of age try to control their internet use the most. They do not like to sacrifice their sleep or getting late for their work because of internet. It could be said that they are at the peak of their career and do not want to get distracted by lucrative entertaining content on internet.

Participants of 36 to 50 years of age use internet for recreation and socialization but not for longer time which could lead to addiction. They are not grown up with internet or similar technology, so maybe they are not much comfortable with online relationships and activities

while participants of 26 to 35 years are busy with their careers and may be family responsibilities, so they have to control their internet usage more than the younger participants have to. Participants of 15 to 25 years of age have access to technology at very young age when their capacity to learn and adapt is at its peak. They do not have more responsibilities to fulfil; they engage themselves in recreation, socialization, and playing games on internet which leads to overuse of internet and its consequences.

**Differences among groups using internet for different durations of time, for various purposes, using different websites/applications and gadgets**

It is hypothesized that there will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in terms of time spend on internet, different purposes of using internet, websites surf on internet and gadgets used to access internet.

This hypothesis is accepted.

Participants who are using internet for more than five hours a day for recreational activities use YouTube, Twitter and Google but participants spending more than five hours daily for socialization as one of the recreational activities are using Whatsapp, Instagram and Facebook more compare to other websites. Another interesting finding is these same groups are trying to control their internet use more than other groups. They probably understand that their internet usage is going beyond their control as they are not getting proper sleep and their work is getting affected, they make more efforts to control it. They all are experiencing withdrawal, functional impairment, social impairment, compulsion, occupational and relationship consequences. They are obsessed with internet irrespective of the time spent on internet, purpose of using internet or websites/applications used on internet. It could be said that one important factor of internet overuse is time; more time on internet, more consequences one will suffer with. Participants who have chosen “others” option for the websites/applications in demographics have the highest mean value for withdrawal, functional impairment, social impairment, compulsive behaviour, occupational and relationship consequences but when it comes to socialization and recreation, Whatsapp, Instagram and Facebook are used more for socialization and YouTube, Twitter and Google are used more for recreation. This shows that participants who have chosen “others” option, could be using the websites for recreation and socialization but also use those websites for other purposes and activities which they do not want to disclose. They could be using certain websites and involve in activities online, which they did not disclose like, pornography,

online gambling, games like PUB-G. Time spent on internet for different purposes by surfing different websites is responsible for overusing internet but the gadgets people use to access internet have no significant effect on internet overuse except recreation. Individuals who use internet for recreational activities, the kind of device they use does make a difference. If they are using mobile phone to access internet, they spend more time on recreation as mobile phone is their 24\*7 companion. Apart from recreation, no other factor is significantly correlated with the equipment individuals use to access internet. Impairment in different areas of a person's life because of internet overuse cannot be attributed to the equipment they use. No matter which device they use, it is the content on internet which are addictive, not the devices.

### **Differences between males and females in internet overuse**

It is hypothesized that there will be a significant difference in psychosocial behavioral outcomes of internet overuse between males and females. This hypothesis is accepted.

There is significant difference between males and females in the scores of factors of internet overuse. Males are experiencing the effects of internet overuse more than females. Males show the withdrawal symptoms like irritation and anger when not able to use internet. They sometimes sacrifice their sleep to be online. The least significant mean difference between male and female groups is for the factor perceived control of internet overuse. Both males and females do not like to sacrifice their sleep for internet so they try to control their internet use almost equally. Overall, males are overusing internet more than females. Many studies reported that there are more male internet addicts than females but some psychologists find that both men and women are same in number in using internet but they prefer different sites according to their interests. Women are more likely to spend time having cybersex with others, while men are attracted to porn websites. Men logged on frequently and spent more time online. They use the internet for necessary activities like money transaction and also for recreation like downloading music. Men are involved in both productive and recreational activities on internet while females mostly use internet for recreation like chatting. It is observed that males and females who are under the age of 30, females are using internet more than males but those who are above 30 years of age, the trend is reversed. Men and women under 30 years of age are using internet for various purposes (Moreno, Jelonek, & Christakis, 2013). This indicates that age and the content people access on internet are also factors to get addicted to internet. Males and females indulge in different activities on internet and males are using internet more than females but it could be possible that at different age

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level females could outnumbered males, or females are spending same time on internet as males do but both are using internet for different activities.

### **Differences among different groups of occupations in internet use**

It is hypothesized that there will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in different occupation. This hypothesis is accepted.

There is significant difference in the scores of the factors of internet overuse between participants who are involved in different occupations of; student, job and business. All three groups are significantly different from each other on the factors withdrawal, functional and social impairment, compulsive behaviour, and recreation. Students are facing occupational and relationship consequences more than employed participants and businessmen. They are more obsessed with internet and use internet more for socialization than others. It could be said that students use internet for recreation and other non-productive activities while participants who are working use internet more for productive reasons which do not make them experience the negative effects of internet overuse. These groups are not significantly different from each other on the factor perceived control of internet overuse. All three groups do not like to sacrifice their sleep or getting late for work because of internet. They may try to reduce their internet use but all of them do not succeed in resisting the temptation of internet, especially younger individuals. They suffer with withdrawal and compulsion more than older individuals.

Research has also reported that teenagers who spend more than six hours online on school days are more likely to suffer with loneliness. They show poor emotional health and more behavioural issues than those with more 'moderate' internet use. They arrive late for school because of lack of sleep. College students are particularly vulnerable to internet overuse because of psychological and developmental characteristics of young adults and easy access to the internet (Kandell, 1998). They also found that students who are not performing well in academics are overusing internet applications and there are strong signs indicating significant relationships between psychological issues and internet overuse. Though internet helps students to enhance or support their educational pursuits, to develop their social skills, and to communicate directly to the teacher, they can't resist the interactive, fun online environment which leads to overuse of internet and thereby the consequences.

### **Differences among different groups of education in internet use**

There will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals with different educational qualifications.

This hypothesis is accepted.

Among students who are pursuing undergraduate courses suffer more with withdrawal, functional impairment, social impairment, compulsive behaviour, recreation, enhanced socialization, occupational and relationship consequences, but they are not as obsessed with internet as the 12<sup>th</sup> grade students. They are highly obsessed with internet compare to other groups at the same time they do not like to sacrifice sleep and work for internet so they try the most to control their internet use. It could be possible that as they are in 12<sup>th</sup> grade and more vulnerable to internet overuse, their parents also keep a tab on their internet use. Research shows that spending excessive time on internet leads to poor sleep habits, fatigue, impaired academic or job performance and relationship difficulties as well as physical symptoms like backache, carpal and radial tunnel syndromes (Murali & George, 2007; Young, 1999). Students favour online activities over sleep, they miss classes and skip exams. However it is important to see for what kind of content students use on internet before saying that they overuse internet, because in this technologically developing world, it is impossible not to use internet. Students are using internet for longer hours but it couldn't mean they are using it for fun only. They could be engaged in productive academic work on internet which could hardly lead to addiction of internet. Internet overuse is basically using internet for longer period that results in cognitive and behavioural symptoms, including loss of control over internet, withdrawal symptoms, similar to the symptoms of substance use disorders. Individuals with internet overuse continue to use internet for different entertaining activities, and like in substance related disorders, they neglect other important activities. They typically devote 8-10 hours or more per day to these activities and at least 30 hours per week. They become agitated and angry if they are prevented from using internet. They use internet for long period without food or sleep. Normal responsibilities of school, work, and family are neglected. This condition is separate from gambling disorder because money is not at the risk but nowadays this has also been started. People are involved in online gambling, they commit crime to recover their money or commit suicide if they have huge debt because of online gambling.



### **Differences among the groups of different marital status in internet use**

It is hypothesized that there will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals with different marital status. This hypothesis is accepted.

Individuals' gender, age, occupation, and education determine for what purposes they use internet. Marital status is another factor which, to some extent, determines the usage of internet. It is evident from the result that singles are experiencing the consequences of internet overuse more than participants who are married or divorced. Singles are suffering from functional impairment, social impairment, compulsive behaviour, occupational and relationship consequences. Participants, who are single and probably young, face the consequences of internet overuse more than married and divorced/widowed. They are experiencing withdrawal symptoms like feeling irritated and anxious when away from internet, they are obsessed with internet, they use internet for recreation and socialization, and also try to control their internet use more than married and divorced/widowed. Here age can be considered as married and divorced people are older than the singles in general and it is revealed from different age groups, younger participants are facing the consequences of internet overuse more than the older participants. So far it is revealed that participants who are young, between the age of 15 and 25, studying in school or college especially for undergraduate courses, are more vulnerable to internet overuse than participants of older age groups who are married or divorced, doing a job or business, and have graduate or post-graduate degree.

### **The effect of loneliness and self-esteem on internet overuse**

It is hypothesized that loneliness and self-esteem will significantly predict internet overuse. This hypothesis is accepted.

Past research strongly suggests that loneliness leads to increased use of internet. Kraut et al. (1998) claimed that overuse of internet is associated with negative effects on individuals, such as decreasing the number of friends and increasing the level of depression and loneliness. There is significant relationship between heavy internet use and loneliness. Increase use of internet causes increase level of loneliness. The time which should be spent for offline meaningful conversations is spent on internet but lonely individuals actually benefits from internet. It provides them a perfect social environment to interact with others. Lonely individuals use internet for companionship and social interaction. They use it to get

rid of negative moods associated with loneliness. Moreover they can control their intimacy level on internet. They can control the amount of time spent in online conversation. The greatest benefit of internet is anonymity. Lonely individuals do not have to interact face-to-face which make them less self-consciousness and reduce their social anxiety, which could promote pro-social behavior and they can make more online friends. These are the advantages because of which lonely individuals overuse internet and face the consequences of internet overuse (Morahan-Martin, 1999). Same as lonely people, individuals who have lower self-esteem use internet more. They are shy and do not feel confident in social relations. They are more comfortable online as they can project themselves the way they want to. They do not have to reveal their actual identity on internet. They start spending more time on internet as their confidence increases. Like lonely people, individuals with low self-esteem too suffer from the consequences of internet overuse.

Present research agrees with these findings. Loneliness and self-esteem not just lead to overuse of internet but individually and collectively they are causing particular effects of internet overuse. The nine factors of internet overuse in this research are all predicted significantly by both loneliness and self-esteem. Individually self-esteem predicts withdrawal significantly but loneliness fails to predict withdrawal. Individuals with low self-esteem spend more time on internet and when they are away from internet they feel negative emotions like anger and restlessness. They return to internet to get rid of such negative feelings. This is the sign of withdrawal. When a person overusing internet comes for treatment and he is showing the symptoms of withdrawal, the therapist can look for his self-esteem. If he has low self-esteem, working on that will make it easier to deal with internet overuse.

The factors occupational and relationship consequences, compulsive behavior, enhanced socialization, and social impairment are significantly predicted by loneliness. Lonely individuals use internet because they find online relations more fulfilling than offline. They do not have to worry about relationship commitment while socializing online and they are friendlier online than in real life. In short, they use internet so much that they even lie to family and friends which leads to stranded or lost relationships. Spending more time on internet will also make them lose their job or career opportunity. If a person uses internet mainly for socialization, he could be suffering with loneliness. Learning to socialize offline will help the person to avoid internet and thereby the consequences.

Loneliness and self-esteem both significantly predict obsession with internet, internet as a source of recreation, and functional impairment. Individuals who are suffering with loneliness and low self-esteem use internet for fun and entertainment. They have few friends in real life and do not have good social skills. They feel that fun without internet is not possible. They do not enjoy or they have stopped going for offline activities like watching movies in theatres as they spend more time on internet. They do not pay much attention to necessary things like sleep and food as they are having more fun on internet. They sacrifice sleep to enjoy internet. They look for online relations more because of loneliness, and due to lower self-esteem they look for online entertainment rather than offline. Perceived use of internet is the only factor which is not predicted by loneliness and self-esteem. People know the disadvantages of internet so they try to control their internet use. They do not like to sacrifice their sleep for internet and they do not wish their work get affected because of internet. If a person shows higher score on this factor, it indicates that he uses internet wisely and he is not suffering with loneliness and low self-esteem. He doesn't need internet to feel confident or to get socialize. His internet usage is more productive than non-productive. At the end, it can be said that if a person is suffering with withdrawal, he has lower self-esteem. If he is using internet mainly for socialization, he is suffering with loneliness and if he is using internet mostly for recreation, he has low self-esteem and loneliness both.

## **6.4 Major Findings**

- This study shows that internet overuse is both addictive and compulsive in nature. Individuals who overuse internet face withdrawal as well as compulsiveness to return to the internet when they are away from it.
- Like in substance use and non-substance use addictive disorders, overuse of internet affects individual's social, occupational, functional, professional, educational life and their significant relationships in negative ways.
- There is positive significant correlation between factors of internet overuse and loneliness. Individuals suffering with loneliness tend to use internet more. This has validated the scale of internet overuse.
- There is negative significant relationship between factors of internet overuse and self-esteem. Individuals with low self-esteem are drawn to the internet for social interaction as being online eliminates physical and interpersonal barriers.

- Individuals between the age of 15 and 25 years are overusing internet more than those above the age of 25. They face the consequences of internet overuse more than the other age groups. Individuals who are from 26 to 35 years of age try to control their internet use more than others.
- Students are overusing internet more than employed or self-employed. Among students, individuals who are pursuing undergraduate courses use internet more than school students and post-graduate students. Post-graduate students are least affected with the consequences of internet overuse. Graduate students who are facing the negative effects of internet overuse the most and they also try to control their internet usage more than other individuals.
- Individuals, who are single, unmarried, use internet more than married and divorced/widowed. So far it is evident that those who are in 15 to 25 years age group, pursuing undergraduate courses and are single overuse internet more than those who are above the age of 25, are either school students or post-graduate students, employed or businessmen, and are married or divorced/widowed.
- Equipment is making no difference in the effects of internet overuse except recreation. There is significant difference between recreation and the equipment like mobile phones, tablet, laptop and computer. If people are using a device which is easy to carry everywhere like smartphones, it becomes more convenient for them to indulge in recreational activities for longer time. This could lead to overuse of internet. Apart from recreation, equipment does not make any significant difference in the effects of internet overuse. It is not the device it is internet and activities which Individuals access through those devices, making them addicted to internet.
- With age, occupation and education, time spent on internet is another important factor responsible for Individuals to get hooked to the internet. Individuals who use internet more than five hours a day are experiencing the consequences of internet overuse more than those who use internet for less than five hours a day.
- Internet is used for productive and non-productive purposes. Individuals using internet for non-productive purposes like recreation, suffer with its adverse effects more than those who use internet for productive purposes, or for both productive and non-productive purposes. When internet is used for recreational activities and for longer hours, it will lead to withdrawal, social impairment, functional impairment, compulsive behaviour, occupational and relationship consequences.

- Participants who did not disclose the websites or applications they use for recreation are suffering with the adverse effects of internet overuse more than those who have mentioned the websites they surf either for recreation or for productive work. Participants did not reveal the websites may be because they are involved in objectionable activities on internet which again they would not like to reveal like watching pornography, online gambling or playing online games which are banned.
- Individuals prefer YouTube, Twitter and Google for recreation and Whatsapp, Instagram and Facebook for socialization. Whatsapp, Instagram and Facebook users try more than the others to control their internet use.
- In all demographics of hours per day and purpose of using internet, the group which is overusing internet the most, is also trying to control their use of internet the most, as they know they are sacrificing their sleep and their work is jeopardized which is not healthy. Those are unsuccessful attempts which do not give much success and individuals suffer with withdrawal symptoms when they are away from internet; this is the addictive nature of internet overuse. Overuse of internet leads to impairment in various facets of their lives and though individuals are aware of it, they can't resist going back to internet which shows the compulsive nature of internet overuse.