Synopsis

Understanding the Nature of Internet Overuse as an Addictive Disorder or a Compulsion: An Exploratory Study.

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Title

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Abstract

The Internet is now an integral and inescapable part of many individuals' lives; they turn to it for many purposes starting from educational, occupational to entertainment. Individuals, who use the internet for entertainment or leisure activities, endanger their academic or job functioning because of the amount of time they spend on the internet. They also experience certain symptoms like withdrawal, tolerance, salience and mood modification. It has been argued by Griffiths that any behavior (e.g.; Internet use), which fulfills these criteria can be operationally defined as addictions. Unlike other disorders in DSM-5, the effects of overuse of internet are still not sufficiently studied to proclaim official disorder status. Internet gaming disorder is under the category of "conditions for further study" in DSM-5 as much research is required to establish Internet overuse as an addictive disorder. There are researchers who are for or against calling Internet overuse as an addictive disorder. So far there is no clear consensus as to whether Internet addiction 'exists'. Moreover, internet addicts do not suffer from the same damage to health and relationships as in other established addictions. There are so many questions unanswered as far as internet overuse is concerned.

This research will try to examine the nature of Internet overuse as an addictive disorder or a compulsion. It will also examine the effects of internet overuse on different facets of individual behavior, whether they meet the diagnostic criteria of internet overuse/addiction or not, and its co-morbid features with other disorders, and will also try to prove other hypotheses. A new scale was developed to measure the nature of internet overuse as an addictive disorder or compulsion. The study was conducted in four phases. The scale was administered initially on 68 individuals for pilot study and then on 2124 subjects for final scale administration. Before and after the administration the scale was evaluated and modified by psychologists and psychiatrists. Factor analysis was done to come up with major factors of internet overuse. Face validity was established by consulting the experts and UCLA Loneliness Scale was used to established criterion validity. Reliability was established by calculating Chronbach α for each factor. From the results it is still not clear whether internet overuse is an addictive disorder or a compulsion, as it shows the properties for both. There is a significant

positive correlation between loneliness and internet overuse. The usefulness of the scale is discussed in detail.

Chapter 1

Introduction

The internet is a global system of interconnected computer networks that use the standard Internet protocol suite (TCP/IP) to serve several billion users worldwide. It is a network of networks that consists of millions of private, public, academic, business, & government networks of local to global scope, are linked by a broad array of electric, wireless & optional networking technologies. The number of internet users is increasing dramatically. People are able to access useful information, communicate with people all over the world, buy various goods, and reserve tickets with a single 'click' via internet. Indeed internet has brought many good things to our life. In an academic field of Consumer Studies, the subject on internet usage is an emerging topic, too. However, in spite of its merits, the internet does pose some serious problems including information divide; information overload; information pollution, such as pornographic contents; and information insecurities. Interestingly, internet addiction bears many similarities to other compulsive consumer behaviors, and its study as a type of non-rational consumption behavior could be an interesting issue in consumer studies. Therefore, this study will provide understandings of the status and causes of internet addiction (Kim, Sunwoo Kim, Rando).

In The Multiplicities of Internet Addiction, Nicola F. Johnson takes on a topic of growing concern among students of the social consequences of internet use: addiction. Addressing both popular and scholarly accounts of the internet as deleteriously addictive, Johnson argues that portraying the internet as addictive is seriously misleading. Distinguishing between dependence and addiction, she insists that while many people have become dependent on the internet for communication and leisure, heavy internet users lack the kinds of destructive consequences typical of genuine addicts. So-called "internet addiction disorder" is contrasted with gambling and pornography addiction to demonstrate the internet's relatively benign nature. Moreover, she argues that time spent online can be productive, keeping distant people connected and genuinely facilitating knowledge acquisition (Johnson, N., 2009).

1.1 Similarity between internet overuse and other addictions

The term ‘addictive behavior’ usually enclosed alcoholism, drug addiction, and smoking. These include the use and abuse of chemical substances, and the disorders may also be confounded by the drugs’ effects. The diagnostic criteria for substance abuse include function disturbances, use in hazardous situations, legal problems, and continuous use despite serious problems (Johansson, &Götestam, 2004). Another type of ‘addictive behavior’ is excessive gambling which does not involving a chemical substance and can have similar effects like substance abuse. The clinical cases of excessive gambling are usually termed ‘pathological gambling’. Although in DSM-IV ‘pathological gambling’ is put under ‘impulse-control disorders’, it has several similarities with chemical abuse disorders. There are many similarities between substance abuse and pathological gambling from a psychological /behavioral point of view. Some of the substance dependence criteria could also apply to pathological gambling. The renewed criteria for pathological gambling in DSM-IV were shaped from the substance dependence (APA, 1994). The main problem with gambling is the economic loss. The gambler is preoccupied with gambling, trying to hide the problem, playing for increasing amounts, and getting money from different sources (legal and illegal). When all money is used for playing, and the individual always loses, considerable money and property may be lost, and bankruptcy might result. Although there is no drug to reinforce this behavior, the operant reinforcing patterns are quite similar, with the expected reinforcer being the ‘big win’ (Griffiths, 1995a). Excessive internet use can also cause problems, similar to pathological gambling. Although there is no monetary reinforcer involved, the operant reinforcing patterns can maintain this behavior as well. Internet dependence and addiction are used interchangeably in the literature, while excessive internet use shows a lower degree of use or problems. However, there are no DSM-IV diagnostic criteria for Internet addiction (Johansson, &Götestam, 2004).

Goldberg and Kimberly Young gave the diagnostic criteria for Internet addiction. They took the DSM-IV definition of pathological gambling as a model for defining Internet addiction. Young (1998) justified utilizing pathological gambling as a model since she believed that it was the disorder most closely similar to Internet addiction in terms of etiology. Both pathological gambling and Internet addiction can be defined as impulse control disorder that does not involve an intoxicant. According to Goldberg, important criteria for internet addiction are tolerance, salience, withdrawal, mood modifications and frequent time of distortion. Both constructed tools to measure internet addiction. Internet overuse is affecting in both positive and negative ways to individuals of all age groups and both male and female. One salient impact of information technology on students' lives is the ever-increasing use of the internet. Although there exist many reports in the media regarding the unhealthy

internet use among students, research is still limited and has mainly relied upon on-line self-selected reports on internet dependency or “Internet addiction" (Wang, 2001).

1.2 Types of Internet use

Many individuals use World Wide Web to access news, weather and sports reports, to plan and book vacations and many more things which interest them. Individuals use chat, messaging and email services to make and stay in touch with friends worldwide. Social networking websites such as Face book, Twitter and MySpace have created new ways to socialize and interact. Sites like LinkedIn foster commercial and business connections. Internet is also used for leisure activities, such as: Internet pornography, online gambling and multiplayer gaming. Internet usage and users’ loneliness are correlated. Lonely individuals tend to use the internet to vent out their feelings and to share their stories with others (Widyanto, Griffiths, 2006).

Everyday new users log onto the internet for the first time and everyday some users have problems related to their time spent online. Several researchers and clinicians have suggested that some individuals may suffer from internet addiction (Anderson, 2001; Brenner, 1997; Davis, Smith, Rodrigue, &Pulvers, 1999; Goldberg, 1997; Young, 1996, 1998) or Pathological Internet Use (PIU) (Davis, 2001a; Davis, Flett, &Besser, 2002; Holmes, 1997). The idea that individuals could become addicted to the internet much like a drug or pathological gambling has fueled considerable controversy, debate and ongoing research. Internet addiction has been studied in different ways: some researchers focused on how people really become addicted to the internet and for some others, the concern was, should Pathological Internet Use (PIU) be added to the next revision of DSM-V as a clinical disorder and how is it related to other disorders and shares the symptoms or diagnostic criteria of other disorders.

1.3 Defining Internet addiction

The most challenging task regarding internet addiction is, to arrive at a comprehensive definition of the concept. Researchers in the field have not been able to agree on a term to describe the concept of internet overuse or abuse. One example of this difficulty lies in the basic terminology for internet-related behaviors. There are as many as six different terms associated with the concept of Internet addiction, including ‘‘Internet Addiction Disorder (IAD),”‘‘Pathological Internet Use,” ‘‘Problematic Internet Use,” ‘‘Excessive Internet Use,” and ‘‘Compulsive Internet Use,” “Internet and Computer Addiction”(Widyanto & Griffiths, 2006). Other names for internet addiction include cyber space addiction, online addiction, net addiction, Internet addicted disorder, and high Internet dependency (Davis, Flett, &Besser, 2002; Hur, 2006).The relationship between *addiction* and certain

kinds of compulsive or impulsive behavior is also a source of definitional confusion. Thus, one definition of addiction is, "compulsive behaviors that persist despite serious negative consequences for personal, social, or occupational function." Another term is Internet Gaming Disorder. In DSM-V, Sec III, it is a condition warranting more clinical research and experience before formal Disorder (www.psychiatry.org/DSM-V). Internet Addictive Disorder or Internet misuse, problematic computer use or pathological computer use are some other terms which are given to overuse of the internet. The term "addiction" is avoided as these are not limited to any single cause.

First introduced by Goldberg (1995)and made popular in Young's (1996)groundbreaking research, the term Internet Addiction Disorder (IAD) is defined as ''the compulsive overuse of the internet and the irritable or moody behavior when deprived of it" (Mitchell, 2000, p. 632). Beard (2005) preferred a more holistic definition of the term that would suggest that an individual's psychological state, which includes both mental and emotional states, as well as their scholastic, occupational and social interactions, is impaired by the overuse of the medium. Different researchers have given different definitions of internet addiction. Rice (2005) defines internet addiction as an inclination (proclivity, predisposition) toward compulsive use of the internet that interferes with one's ability to lead a normal life. According to Shapira, Problematic Internet use is conceptualized as an ''impulse control disorder in which an individual experiences rising tension or arousal before internet use and a sense of relief or pleasure after completion of the behavior" (Shapira et al., 2003, p. 212). These authors also proposed broad diagnostic criteria based on the symptoms of impulse control disorders as stated in the diagnostic and statistical manual of mental disorders, fourth edition, text revised (DSM-IV-TR) (American Psychiatric Association,1994), and the impulse control disorders of compulsive buying proposed by McElroy, Keck, Pope, Smith, and Strakowski (1994).Pies defined Internet Addiction as, an inability of individuals to control their internet use, resulting in marked distress and/or functional impairment in daily life (Pies, 2009). These researchers agree on the impairment cause by internet overuse but they still differ on the nature of the internet overuse, i.e. addictive, impulsive or compulsive.

1.4 Various models and theories to study addiction

As with most addictive behaviour, few psychological and behavioural theories have been proposed to explain internet addiction. However, from clinician's point of view, it is best to conceptualize the cause of internet addiction as bio psychosocial in nature.

1.4.1 The Five-Factor Model:

Rather than looking at the relationship between internet use and specific traits, the majority of research in this area has been based on broad models of personality (Ryan and Xenos 2011). The Five-Factor Model, otherwise known as the Big Five (Goldberg 1990) is based on the theory that an individual's personality can be evaluated by determining how they rank on five bipolar factors: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (McCrae and John 1992). The importance of each of the Big Five personality factors has been independently validated by a number of researchers, and empirical testing across various methods and cultures has shown this model to be widely replicable (Goldberg 1990; Buchanan et al. 2005; Landers and Lounsbury 2006; McConochie 2007; Chory and Goodboy 2011; Ryan and Xenos 2011). Some important variables that have been widely studied include the amount of time individuals spend online, their experience of using the internet, the negative impacts of internet addiction on their performances, and the gender differences in the severity of addictive behavior, or differences among individuals involved in different types of internet activities (Chang and Man Law 2008).

Researches indicate that individuals higher in openness but lower in agreeableness played violent video games more frequently. Charltona and Danforth's (2010) study, which has correlated personality variables with internet usage and addiction more generally, showed that only emotional stability, attractiveness, and negative value were independent predictors (Niculović, Živković, Manasijević, &Štrbac, 2012). Individuals exhibiting greater introversion, shyness, and loneliness use the internet for various activities to a greater extent than those who are more likely to engage in face-to-face communications (Morahan-Martin and Schumacher 2000; Moody 2001; Scealy et al. 2002; Chak and Leung 2004; Engelberg and Sjöberg 2004; Landers and Lounsbury 2006).

1.4.2 Psychological model:

Apart from traditional disease model and genetic view, a psychological model of addiction views the addictive behaviour as a means to cope with stress and balance one's emotional state and personal satisfaction while the bio psychosocial model intends to combine all (Stevens-Smith, 1994). Addictive behaviour also has a developmental characteristic and a developmental approach works in substance abuse counseling (Daniels &D'Andrea, 1994). Therefore, the developmental perspective offered by Erikson (1963, 1968) could be useful. Erikson's model does embrace the bio-psychosocial dimensions with a grand progressive strengthening one's ego and consolidating one's identity towards ever-developing psychosocial maturity (PSM). If an individual has a sound PSM level adequate to one's developmental stage, it is expected that the addiction should be less likely to occur because of

one's overall psychological health and resistance to stress. In addition to PSM, self-efficacy has been recognized as a key factor in recovery from addiction. Regardless of their level of knowledge or skill, people dealing with any kind of problem are most likely to be successful in finding and acting on solutions when their sense of self-efficacy is high (Lewis, 1994, p. 7). Few studies so far on IAD research have examined the relationship between self-efficacy and IAD (Wang, 2001).

1.4.3 Etiological model:

As with most addictive behaviors, a range of psychological and behavioral theories has been proposed to explain internet addiction. Learning theory emphasizes the positive reinforcing effects of internet use, which can induce feelings of well-being and euphoria in the user, and works on the principle of operant conditioning (Wallace, 1999). Internet use by a shy or anxious individual to avoid anxiety provoking situations such as face-to-face interaction tends to reinforce use by avoidance conditioning. The reward circuit in the brain is normally activated by 'natural' positive reinforcers such as food, water and sex, which are all vital to survival. However, 'unnatural' reinforcers such as drugs, alcohol, gambling and the internet can prove more powerful, causing people to neglect sex, grooming, work, even food and health. The reward deficiency hypothesis suggests that those who achieve less satisfaction from natural rewards turn to substances to seek an enhanced stimulation of reward pathways (Blum et al, 1996). Internet use provides immediate reward with minimal delay, mimicking the stimulation provided by alcohol or drugs. Impulsivity is seen as a risk factor for the development of addiction. Shaffer (1996) has suggested that internet use is linked to sensation seeking behavior, which is a sub trait of impulsivity. Individuals who are impulsive tend to use the internet as a sensation seeking tool and may become addicted to it.

Self-esteem in childhood is crucial to the development of a mature personality in adulthood. If a child does not get strong parental or peer support, his self-esteem will be low which can result in feelings of inadequacy and worthlessness (Harter, 1993). This might lead individuals to turn to the internet as a way of escaping reality and finding a safe world in which they are not threatened or challenged. According to Shotton (1991), introverted, educated, technologically sophisticated males are more prone to develop pathological internet use. Individuals who have low self-esteem are more vulnerable to internet addiction. Shy individuals use the internet to overcome their deficiencies in social skills, communication and social relationships (Murali, & George, 2007).Despite many etiological models, it is still not clear to what precisely internet addicts become addicted.

1.4.4 Cognitive-Behavioral Model of Problematic Internet Use (PIU):

As per this model internet addiction may result when some psychological factor causes an individual to be vulnerable to dependence on new online content. Obsessive thoughts then follow about the online material, and feelings develop where the internet is perceived as a "friend," which further encourages problematic behaviors (Yellowlees and Marks 2007). Davis (2001) proposed a cognitive– behavioral theory of problematic internet use, which he viewed as arising from a unique pattern of internet related cognitions and behaviors. Results from a number of studies support the claim that psychosocial problems such as loneliness and depression are associated with PIU (Amichai-Hamburger & Ben-Artzi, 2003; Caplan, 2002, 2003; LaRose et al., 2003; Kubey et al., 2001; Morahan-Martin, 1999; Morahan-Martin & Schumacher, 2000, 2003; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000). According to Davis (2001), such psychosocial problems increase the likelihood that an individual will experience cognitive and behavioral symptoms which in turn, will result in negative outcomes. One example of a maladaptive cognitive symptom of PIU is experiencing more positive feelings about oneself when online compared to when offline (Davis, 2001; Caplan, 2003). With regard to maladaptive behavior, Davis (2001) proposed that PIU involves compulsive internet use to the point that the individual suffers negative outcomes at work, school, or in personal relationships. Another reason for PIU is Social Skill Deficits. An abundance of research has indicated that social skill deficits in Face-to-Face contexts are associated with the same psychosocial problems that Davis (2001) argued precipitate the development of PIU, including depression (Segrin, 1998; Segrin& Flora, 2000; Wierzbiki, 1984; Wierzbiki& McCabe, 1988), loneliness (Jones, Hobbs,&Hockenbery, 1982; Spitzberg& Canary, 1985; Spitzberg& Hurt, 1989), and social anxiety (Leary & Kowalski, 1995; Segrin, 1996; Segrin& Kinney, 1995). Scholars also said that there is a relationship between well-being and social skill. They have proposed the social-skills-deficit vulnerability hypothesis, which argues that an individual's psychosocial well-being is threatened by a lack of interpersonal competence (Lewinsohn, Mischel, Chaplin, & Barton, 1980; Segrin, 1990, 1992, 1993, 1996; Segrin& Flora, 2000; Youngren&Lewinsohn, 1980). In general, social skill reflects the ability to interact with other people in a waythat is both appropriate and effective (Segrin&Givertz, 2003, p. 136; also see Bedell& Lennox, 1997; Spitzberg, 2003; Spitzberg&Cupach, 1989; McFall, 1982) but when individuals lack confidence in their self-presentational skills, they experience social anxiety (Leary, 1983; Leary & Kowalski, 1995; Segrin& Kinney, 1995; Schlenker& Leary, 1985). For example, in one study, Segrin and Kinney (1995) found that, although socially anxious individuals'

behavior did not differ significantly from that of non- anxious individuals, socially anxious participants negatively misperceived their own social skills.

In order to increase their perceived self-presentational ability and to decrease social risk, people with social-control skill deficits are likely to seek out communicative channels. That will help them to minimize potential costs and enhance their limited abilities. They are more likely than others to get attracted to online social interaction which gives them greater anonymity (see Bargh, McKenna, & Fitzsimmons, 2002; McKenna &Bargh,1999, 2000; McKenna, Greene, & Gleason, 2002), greater control over self-presentation and impression formation (Bargh et al., 2002; Cornwell & Lundgren, 2001;Noonan, 1998; O'Sullivan, 2002; Walther, 1996), and less perceived social risk(Morahan-Martin & Schumacher, 2000; Walther, 1996). As Davis et al. (2002) argued, "For some individuals, the internet becomes a buffer for threatening social interactions" (p. 332).

1.5 Advantages and disadvantages of the Internet

Advantages: The internet allows greater flexibility in working hours & location, especially with the spread of unmetered high-speed connections. Individuals can access the internet almost from anywhere by numerous means, including through mobile internet devices. The low cost and nearly instantaneous sharing of ideas, knowledge & skills has made collaborative work dramatically easier. A group of individuals can communicate cheaply and share ideas with the help of internet. Publishing a web page, a blog, or building a website doesn't cost much and even many cost-free services are also available. Internet is used as a teaching-learning tool. According to Mathew and Dohery-Poirier (2000) Internet creates an environment where teachers will have more time working with individual students and small groups because instructions are delivered via the Web. Lê and Lê stressed that teachers and students are no longer following the traditional mode of learning but instead their interactions with one another is immediate, prompt, widely shared and resource supportive. For distance education, internet is a boon. It helps individuals to guide themselves for learning or working in detail on an interesting topic. So people can access educational information at any level from anywhere. For corporate world, it is not possible to work without computers and internet. Messages can be exchanged even more quickly and conveniently through email. Optimists regard the World Wide Web and e-mail as realms for making and keeping friends, joining global communities, and exchanging ideas freely outside the bounds of oppressive government restrictions. The internet helps in establishing relationships and making friends through game playing (McNamee, 1996; Parks & Floyd, 1996).The online crowd cut back on television time, watching the TV 4.5 fewer hours per week than the no-Net group did. Internet users reported more community and political involvement, as well as more social

contacts, than nonusers did, reported sociologist James E. Katz of Rutgers University in New Brunswick, N.J., and his colleagues (Bower, 2002).

The internet has given a new concept of working--working from home. It also helps individuals to relieve from unpleasant and overwhelming feelings like stress, loneliness, anxiety and depression. This is where the disadvantages of the Internet start from (Moreno, Jelenchick, Chrislakis, 2013).

Disadvantages: As the internet is helping individuals to get relief from unpleasant feelings, they are prompted to use internet more and more. An individual who is suffering from anxiety or depression, addiction, lack of social support, socially less active or stressed, chances are more that such individuals will use the internet more (Saisan, Smith, Robinson, Segal, 2013). It affects individuals socially, psychologically and occupationally (Young, 2007). Individuals who get addicted to the internet are unable to manage central aspects of their lives as they are preoccupied with online use. They spend less time with family and friends and gradually ignore them. Increased use of the internet leads to diminishing social support and happiness, and increases in depression and loneliness(Young, 2007).They also develop the symptoms like salience, mood modifications, tolerance and withdrawal(Griffiths, 1996). Different individuals use different applications of the internet for various purposes.

A study conducted by Rohith and Shailja in Banglore reveals that the professional who are overusing internet are staying on-line longer than intended (57.95%), checking e-mail before something else need to do (42.4%), losing sleep due to late night log ins (39.7%), eating while surfing (27%), physical activity going down since one has started using the Internet (21.3%), using Internet to escape from problems (18.3%), becoming upset on attempting to cut down Internet use (11.9%), surfing being responsible for spending less time with family members (6.2%). Severely internet addicted users reported more irregular sleep patterns (64.2%) and more episodes of sleep disturbance than moderately addicted Internet users (61.1%). In addition, sleep disturbance could increase the risk of mental health problems as well as substance abuse. Internet addicted users drank and smoked more and had a poorer quality diet and higher frequency of meal skipping than moderately addicted internet users. Corporate Internet overuse is another consequence of the Internet. The AMA in 2000 survey found that approximately 38% of 2100 major U. S. companies check their employees' email and 54% monitor Internet connections. Of these organizations, 17% have fired employees, 26% have issued formal reprimands, and 20% have given informal warnings. While job termination may remove employees who abuse, it may create new problems with regard to increased levels of job turnover, poor employee morale, and open the door to a variety of legal liabilities. Recent trends suggest that

lost productivity and potential corporate liability due to inappropriate Internet use can cost companies millions of dollars. Employees may download or upload illegal material such as child pornography via company computers that put the employer at legal risk. Employees may send out offensive mail to coworkers triggering sexual harassment claims in the workplace (Young and Case, 2007).

One of the more consistent concerns is presence of pornography on the internet. Pornography and other related activities and interactions are probably the most common use of the internet (Stern and Handel, 2001). Because of the Internet, certain new addictions are emerging, for example, cyber addiction. Young (1998) identifies five best-known behaviors of cyber addiction: cyber sexual, cyber relational, excessive web surfing, Net gaming, and computer gaming addiction. Dufour (2003) points out that pathological Internet user feels competency on the internet, but he is socially isolated but, at the same time, less inhibited when online. Addiction to online games and gambling for money has boomed. Internet is also used by research scholars but here too it is a matter of concern as so much information is available on internet that it can overwhelm student researchers. Some students are tempted to use the internet in academically questionable ways, such as the many forms of plagiarism. The convenience of Internet-based research takes a toll on traditional library-based resources, making these long-established tools underutilized by student researchers as they may see hard-copy and other more traditional research materials as less worthy of their attention (Barberio, 2004). Even school students are using internet or schools are encouraging them to use internet as it is an informative medium but teachers, librarians and computer coordinators believe that information on the Internet is too disorganized and unrelated to school curriculum which sometimes distract the students and hamper students' performance. They actually suffer from poor study habits, poor grades, and failure in school because of Internet use. Some researchers say that students are at the highest risk for developing problematic Internet use, because for them Internet is fast, free and available all the time. They favor online activities over sleep, miss classes and skip exams. However some cautioned that it may not be practical to label students "Internet addicts" based purely on excessive use, as it is often necessary for them to use the Internet to their school work (Yellowlees, Marks, 2007).

1.5.1 Social consequences of internet overuse:

Researches indicate that social isolation plays bigger role for internet overuse. People who are suffering with loneliness use internet more to kill their boredom and as they use it more, they get more isolated, away from family and friends. They use internet for social relationships like online affair or cyber affair. Young in 1998 defined cyber affair as a romantic and/or sexual relationship that is initiated via online contact and maintained predominantly through electronic conversations that occur

through email, chat rooms, or interactive games. Young further said that when people are online, they are more likely to be open, honest, and forthright, revealing personal truths and the intimacy that might take months or years in an offline relationship may take only days or weeks online. But gradually these seemingly harmless relationships become the reason for marital discord. Consistent with the results of previous studies (Amichai-Hamburger and Ben-Artzi 2003; Caplan 2002; Li and Chung 2006; Lin and Tsai 2002), it is indicated that the social support offered by a cyber- relationship can lead to more severe addictive behavior (Niculović*et al*, 2012).

The anonymity of online communication helps ensure that people who seek social contact from the Internet are not necessarily subject to any social consequences in real-life: if an individual offends someone on the Internet, he/she can simply change online identities and start another relationship. Although this clearly might help people fulfill interpersonal needs, heavy reliance on it can make them fail in offline social encounters. For example, people who get used to the virtual context may find it difficult to get along with others without the anonymity of online social interactions, because they can no longer change their identities when they face an unsatisfactory relationship. Feeling frustrated in real-life social contacts, they might prefer to turn back to cyber relationships and treat them as a substitute (Chang and Man Law 2008). Likewise, social-network sites are designed to share information about the self with others, including likes/dislikes, hobbies, and personal musings via "wall posts," and "status updates" (Gonzales and Hancock 2011). Furthermore, this information could make people aware of their own limitations and shortcomings, which would lower self-esteem (Heine et al. 2008), or it could be that this information represents selective and therefore positively biased aspects of the self, which might raise self-esteem (Walther 1996). Whereas a non-edited view of the self (i.e., mirror) is likely to decrease self-esteem, Gonzales and Hancock (2011) findings suggest that the extra care involved in digital self-presentations may actually improve self-esteem. While there is a large measure of agreement that technology encourages users (senders) to portray themselves in a more positive light to others (receivers), there is some debate concerning the degree to which self-presentation is modified through the use of technology (Underwood et al. 2011).

Chapter 2

Review of literature

2.1 Internet Addiction Disorder

In relative terms (for example, when compared to other addictions such as alcoholism and drug addiction), internet addiction is a very new phenomenon. Most of the disorders included in the DSM have been extensively researched and treated in some form for at least fifty years - and many disorders such as depression have been studied for more than one hundred years. In contrast, the internet itself has only been widely available for around twenty years and the high speed access that many of today's websites and applications depend on has not yet saturated the market. In short, excessive internet use has not been around long enough or sufficiently studied to warrant official disorder status. (Rautenkranz, L., 2013).

With the vast information technological revolution, some people feel so excited with this new wave and seem very hard to get off the line. That is, they are becoming hooked, just like other gambling behaviour. Such a phenomenon has only recently been coined as the “Internet Addiction Disorder" (IAD), a kind of behavioural addiction or technological addiction, and has attracted psychologists' attention (Griffiths, 1997) as well as entered the medical lexicon (OReilly, 1996).On the other hand, anecdotal evidence is ample regarding IAD (e.g. Los Angeles Times/Washington Post News Service, 1996; Murry, 1996; Self-Psychology Discussion Forum, 1997). In fact, Dr. Kimberly Young has set up the first Center for On-line Addiction on the internet. She said that internet addiction is a legitimate clinical disorder. Further research conducted by Young has asserted that individuals who are addicted to internet spend about 40 to 80 hours on-line/week and suffer with negative consequences including disrupted sleep patterns, excessive fatigue, impaired work or academic performance and relationship difficulties as well as physical symptoms of prolonged computer use (Young, 1999).

2.2 Important Researches on Internet addiction

From 1996 to 2006, few researchers did research on Internet overuse. Like, Young (1996), 1997) investigated whether or not the internet could be addictive. Griffiths (2000) believes that technological addictions, including the internet, are a branch of behavioral addictions satisfying the six criteria for addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse. He argued that any behavior (e.g.; internet use), which fulfills these criteria can be operationally defined as addictions. It also has psycho-physiological effects like disturbances in both mental processes,

particularly thoughts, emotions, and behaviors, and bodily actions especially in relation to withdrawal symptoms from the vice (for example, tremors) can be experienced. (Douglas et al, 2008).Chou (2001) investigated the reasons for heavy internet use and the impact of the behavior on college students by conducting online interviews. Chou and Hsiao (2000) explored internet addiction in Taiwanese college students. They found the high communication pleasure score to be a high predictor of dependence. Aspects of relationship did not correlate with internet addiction. Use hours, high email use, and sex did not relate to the addiction. Tsai and Lin (2003) conducted online and face-to-face interviews to look at effects of IAD.

Ng and Wiemer-Hastings (2005), Chuang (2006) and Wan and Chiou (2006) studied effects of internet abuse on relationships, school performance, game-induced seizures and psychological motivations of online game addicts through online survey and semi-structured interviews. Xuanhui and Gonggu (2001) did research with Chinese students and Wang (2001) in his Australian study found, contrary to his expectations, that internet dependency was independent of the psychosocial maturity and the general self-efficacy. Morahan-Martin and Schumacher (2000) found that 8.1% of their 283 US students had four or more symptoms on PIU. Treuer, Fabian and Furedi (2001) concluded that internet addiction was an impulse control disorder (Johansson, Götestam, 2004).

2.3 Internet overuse as Addiction/not an addiction/ compulsion

2.3.1 Internet overuse as Addiction

The concept of addiction, though traditionally used to describe a physical dependence on a substance (Holden 2001), has been applied to excessive use of the internet. "Internet Addiction" is a newly proposed construct, derived from DSM-IV criteria for substance abuse. Some characterizes internet addiction as an impulse-control disorder that mainly involves psychological dependence on the internet (Young 2004). The addictive element could be the search for stimulation through interactive services, or the internet may serve the purpose of an escape from real life difficulties. Researchers studying the problems related to internet use have adopted different terminologies such as Internet addiction, Internet addiction disorder, Internet dependence, problematic Internet use, or pathological Internet use to describe the negative effects of excessive Internet use on personal lives (Chen et al. 2004; Chou and Hsiao 2000; Davis 2001; Goldberg 1995; Griffiths 1998; Kandell 1998; Morahan-Martin and Schumacher 2000; Scherer 1997; Shaffer 1996; Young 1998a).

Researchers have described a syndrome of intense preoccupation with using the internet (Chou 2001; Treuer et al. 2001), excessive amounts of time spent online, compulsive use of the internet,

difficulty in managing the time spent on the internet, feeling that the world outside of the internet is boring, becoming irritated if disturbed while online, decreased social interaction with "real" people (Kraut et al. 1998), and increased loneliness and depression (Nalwa and Anand 2003; Whang et al. 2003).But, Internet addiction is not an official psychiatric diagnosis. Despite a growing movement to have obsessive computer and internet use included in the Diagnostic and Statistical Manual of Mental Disorders (DSM), so far this has not happened.So many researchers support to call internet overuse an addiction because internet has tremendous potential to affect the emotions of humans and in turn, alter our self-perception and anxiety levels(Kalwar, & Heikkinen, 2009;Horstman, 2009).A British psychologist, Mark Griffiths is studying "Internet addiction" by comparing clinical examples with established definitions of addiction. He defines "technological addictions" as "non-chemical (behavioural) addictions which involve human-machine interactions" (Griffiths, 1997). Griffiths (1996) hypothesized that technological addictions were behavioral and not chemical addictions that involved human and computer interaction. Technological addictions are nonchemical (behavioral) addictions that involve excessive human-machine interaction. They can either be passive (i.e. television) or active (i.e. computer games) or usually contain inducing and reinforcing features which may contribute to the promotion of addictive tendencies. He modified his definition of internet addiction to include salience of the activity to the user, changes in mood when engage in online activities, an increasing tolerance and need for more of the online activity, presence of withdrawal symptoms, and a tendency to relapse after the online activity is discontinued (Griffiths, 2001).

Another researcher Davis (2001) noted that the use of the term "addiction" to describe unhealthy internet use is incorrect. Addiction typically refers to physiological dependence between a person and some form of stimulus. The DSM-IV does not use the term addiction to describe pathological use of any stimulus. Instead, the DSM-IV uses the terms dependence for chemical misuse and pathological for excessive gambling. Therefore, Davis (2000) concludes that Pathological Internet Use (PIU) is the most appropriate term to describe problematic internet use (DiNicola, 2004).Kimberly Young (1996) also made similar suggestions as Davis which were more closely related to impulse control disorders than addictions. But Hall and Parsons (2001) noted that previous definitions of internet addiction were based on DSM-IV criteria for either pathological gambling or substance dependence, but did not address other critical issues related to the disorder like co-morbid mental health issues, separating normal behavior from unhealthy one and time spent online for normal work and work which is pathological in nature. Suler (1999) too agreed that one's passion for the internet can be healthy, pathologically addictive, or somewhere in between. Kandell (1998) suggested that college students are particularly vulnerable to internet addiction because of psychological and

developmental characteristics of young adults, easy access to the internet, and the expectation of internet use. Anderson (2001) conducted one of the most recent and the largest studies of PIU among college students. He tried to answer certain questions like how much time do students spend online, does excessive internet use result in academic, social, or lifestyle difficulties etc. He found that the overall average amount of time spent online in voluntary activities by college students was 99 minutes per day and World Wide Web and email were the most time consuming activities at 39 and 35 minutes per day respectively (DiNicola, 2004). Schener (1997) also conducted a study of PIU on college students. He noted that dependent group averaged 11 hours online per week; while non-dependent group reported only eight hours online per week. His study may be best viewed as an early exploration of PIU and is most likely a reflection of the Internet use patterns that were the norm at the time of the study.

Many studies have been conducted on the internet usage of college students which reveal that even though Internet Addiction Disorder did not appear to be present at the time of the study, the findings did not guarantee that Internet Addiction would not become an issue for college students at a later time. Certain students may experience problems from their time, and that the amount of time spent online might be far less than what prior studies had suggested would be the level at which the user experienced problems but there is a relationship between internet dependency and academic impairment (Kandell, 1998; Morahan-Martin & Schumacher, 1997). Kubey et al., 2001 also found that use of all internet applications is higher among the internet dependent and academically impaired students. They also agreed with previous research that there are strong indications of significant psychological issues associated with heavier internet use (DiNicola, 2004).

Some researchers say that defining *addiction* has moved beyond this to include number of behaviors that do not involve an intoxicant, such as compulsive gambling (Griffiths, 1990), video game playing (Keepers, 1990), overeating (Lesieur & Blume, 1993), exercise (Morgen, 1979), love relationships (Peele & Brodsky,1979), and television viewing (Winn, 1983). During the past decade, a growing body of peer-reviewed literature adapted the term *Internet addiction*, and its acceptance as a legitimate disorder grew (e.g., Ferris, 2001; Greenfield, 1999; Hansen, 2002). All these researchers agree on one point that there is a need for further research. Person to person internet usage and time duration varies so calling internet use/overuse an "addiction" or a "compulsion" is still a question mark, it is still in doubt. It is a disputed disorder because though Internet addiction has been accepted as a legitimate clinical disorder which often requires treatment, researchers are divided over whether Internet addiction is a disorder on its own or a symptom of another underlying disorder. There is also a debate over whether it should be accepted as an impulsive-control disorder or obsessive compulsive

disorder rather than addiction because 25%of users show internet criteria in first 6 months of using internet, some of them even feel competency and exhilaration. Whether we call this internet addiction, online addition, or something else is largely irrelevant. Online habits that far exceed what most people would consider "healthy" (for example ten-plus hours per day) can have serious consequences for the addict (Rautenkranz, 2013).

2.3.2. Causes and effects of internet addiction

No area of an individual's life is left without the effects of internet overuse and it as affected socially, psychologically, and occupationally. As Kimberly Young said, Addicts use the internetfor38 hours a week on an average and they use it for non-academic and non-employment purposes which results in poor grades among students, discard among couples and reduced work performance. Some of them were also getting the treatment for different disorders like alcoholism, drug dependency, compulsive gambling or chronic overeating. They see the same excessive behavior, the need for a crutch to help them relax which they had exhibited in prior addictions. Another researcher Orzack (1996) noted that primarily depression and bipolar disorders in its depressive swing were co-morbid features of pathological internet use (Grohol, 2014).

It can be said that existing psychosocial problems could be the cause of internet addiction. Still it is not determined whether the relationship between existing psychosocial problems and internet addiction is one of the cause or effect. Loneliness and depression are also related to internet addiction. Kraut, Patterson, Lundmark, Kiesler, Mukphadhyay, & Scherlis in 1998 suggested that heavy internet users tend to have less interaction with family members, have smaller social circles, and higher rates of depression and loneliness than light users (ChiungJungHoung, 2010).With the increasing attention being placed on internet addiction, it can no longer be denied that the problem exists. While the disorder does not cause the same type of physical problems as other addictions such as alcohol or drug abuse, the effects on social interactions are similar and include loss of control, cravings and withdrawal, social isolation, marital discord, academic failure, job termination, and excessive financial debt (O'Reilly, 1996). Individuals classified as having IAD live lives that are severely influenced by the internet in a negative way (Simkova & Cincera, 2004). The internet is particularly influential on their attitude towards the world in general, with serious implications such as decreased productivity, job and educational performance, and quality of family life (Soule, Shell, & Kleen, 2003; Young, 1996). These negative repercussions can be classified into five categories that are academic, social, financial, occupational, or physical in nature (Young, 1996). In the academic context, students will exhibit excessive use of the internet by browsing non-academic websites, engaging in online

discussions, and playing online games rather than studying. Relationships are affected to the extent where interactions with family members and close friends deteriorate and actual time spent with real people gradually decreases, while relationships with online friends grow stronger. (Douglas et al, 2008).The social impact of IAD is perhaps the most devastating of all the negative consequences of the behavior. Similar to other addictions, persons with IAD go through denial and withdrawal. Understanding IAD is important because of its association with other psychiatric illnesses such as pathological gambling, sexual deviations, and compulsive shopping (Shapira, Lessig, Goldsmith, Szabo, Lazoritz, Gold, et al. (2003). Eventually the problem is with using internet for recreation, for fun, to kill the time rather than using it for productive reasons. That actually makes individuals getting addicted to the internet. Life at home and at workplace may also be affected by a lack of motivation to do normal household chores and to fulfill job responsibilities. Although the internet has its benefits in increasing efficiency and productivity in the working environment, it can also be distracting for employees with a predilection towards addictive behavior.

There are some general warning signs that a person's internet use may become a problem. They are, losing track of time online, having trouble completing tasks at work or home, isolation from family and friends, feeling guilty or defensive about Internet use, lie to family members, therapists, or others, feeling a sense of euphoria while involved in internet activities, preoccupation with the internet, use of the internet in the increasing amount of time in order to achieve satisfaction, repeated unsuccessful efforts to control internet use, feelings of restlessness, moodiness, depression, irritability when cut down internet use, jeopardized or risked loss of relationships, job, education or career opportunities.

2.3.3 Internet overuse NOT an "Addiction"

There are different opinions among researchers about the existence of "Internet addiction". But no official diagnosis is available for internet addiction yet. If the word "addiction" is even appropriate, it is important to note that people become "addicted" to these activities and not to the internet itself (Holmes, 2003).There are few arguments why internet overuse should not be called an addiction. Researchers who oppose this term say that Internet addiction disorder is not a true addiction and maybe it is no more than a symptom of other, existing disorder. For many individuals, overuse or inappropriate use of the internet is a manifestation of their depression, anxiety, impulsive control disorders or pathological gambling. Stuart Gitlow has a similar view. According to him, it is possible that people, who overuse internet, have some underlying disease—perhaps they have major depression or OCD or Asperger's or something other than addictive disease. Or perhaps they really do have

addiction, in which case that will become clear as time passes and research is conducted. He observes that the medical term *addiction* should not be applied to anything other than addictive drug use and gambling. The public uses the term “addiction” as an equivalent of *overuse* but the medical definition is based on ‘use despite one’s best interest,’ and quantity of use has nothing to do with that. Another argument is it is possible that a person could have a pathological relationship with a specific aspect of the internet such as bidding on online auctions or pornography, but that does not make the internet medium itself addictive.

So far the diagnostic criteria for Internet addiction which are inspired from the diagnostic criteria for pathological gambling in DSM-IV. But it is observed that there are significant and critical differences between common internet activities and pathological gambling. The internet is largely a pro-social, interactive and information driven medium, while gambling is seen as a single, anti-social behavior that has very little social value. Many so-called internet addicts do not suffer from the same damage to health and relationships that are common to established addictions (New York Times, 2005).Unlike chemical dependency, the internet offers several direct benefits as a technological advancement in our society and is not a device to be criticized as "addictive" (Levy, 1996). Furthermore, it is argued that the term *addiction* should be applied only to cases involving the ingestion of a drug (e.g., Rachlin, 1990: Walker, 1989).The relationship between “addiction” and various compulsive or impulsive behaviors is also a source of confusion. The term *addiction* is not used in the *DSM-IV*; rather, the terms *substance dependence* and *substance abuse* are used.

At the same time, there are certain findings and views which question why internet overuse should not be called an addiction. Starcevic (2012) highlighted in particular that there is no clear consensus as to whether Internet addiction 'exists', given the variability in terminology, methodology and psychometric measurement used across studies. Another important theoretical issue raised by him is that Internet addiction is a misnomer because it refers to an addiction to a 'delivery mechanism’. Most clinical formulations of addiction usually consider a range of structural and situational characteristics as determinants of the addictive behavior (Griffiths, 2005). On this view, it could be argued that most, if not all, addictive activities involve addiction to a delivery mechanism of some kind (King and Delfabbro, 2013). Davis (2001) too agreed that users are addicted to the material they find on the internet, such as online gambling, shopping, or chatting, not to the medium itself. He has described "pathological Internet use" and has distinguished between specific pathological Internet use/overuse of certain online applications, and generalized pathological Internet use, the overuse of the internet for no specific purpose. They have also noted that Internet overuse/addiction shares a number of common elements with impulse control disorders, and it has co-morbid diagnosis with other

disorders like mood disorders, bipolar disorders, and social anxiety disorder. Some researchers have proposed that problematic use of the Internet should be viewed as such a disorder; for example, impulse control disorder not otherwise specified (NOS) with excessive Internet use (Yellowlees and Marks, 2007).According to Block, the underlying issue is not the internet, but rather the abnormal relationship and reliance on technology. He also notes that whereas drug addictions can directly or indirectly cause death during the intoxicated state, the behavioral addictions don't seem to carry such a risk, at least early on (J. Block, 2008).

There are different opinions on two things: first, how far internet overuse is an addiction? Second, internet overuse is a manifestation of an underlying disorder or is truly a discrete entity? Some psychiatrists have argued that internet addiction shows the features of excessive use, withdrawal, tolerance, and negative repercussions that characterize many substance use disorders. However, commonly accepted and generally considered *withdrawal* and *tolerance* have not been established in IA subjects using physiological measures comparable to those used in, say, patients dependent on drugs or alcohol. Furthermore, if *tolerance* is taken to mean the need, where an individual needs intense internet-based stimuli to produce the same specified psychological effect over time, there is no study which provides objective measures of *tolerance* in IA-diagnosed individuals. Thus, in internet addiction the terms *withdrawal* and *tolerance* are used either metaphorically or are used as common behavioral criteria, such as the patient's complaints of feeling irritable or anxious. Based on a model emphasizing intrinsic suffering and incapacity, as well as data regarding course, prognosis, temporal stability, and response to treatment, it appears premature to consider internet addiction as a discrete disease entity (Pies, 2009).

2.3.4 Compulsive and excessive internet use

Compulsive and excessive internet use is closely related, but conceptually distinct, behavioral patterns. Excessive internet use refers to a quantity, or degree, of online activity that exceeds what a person thinks of as a normal, usual, or planned amount of time online, whereas compulsive use involves difficulty with impulse control (Caplan, 2002). Spending an excessive amount of time online is not necessarily indicative of a problem—many functional internet behaviors require excessive time online. For example, a student may spend what many would consider to be an excessive amount of time online, but such effort may be necessary in order for the student to successfully complete an assignment.

Compulsive, rather than excessive, internet use is more likely to result in negative outcomes. There are individuals who compulsively chat online, individuals who compulsively download

pornography, and individuals who compulsively play games. Indeed, a number of researchers have maintained that PIU primarily involves compulsive internet use (for a review, see Beard & Wolf, 2001; see also Caplan, 2003; Davis, 2001; Griffiths, 2000; Shapira et al., 2000; Young, 1998;Young & Rogers, 1998). In one study, Caplan (2003) compared the extent to which excessive internet use and compulsive internet use predicted negative outcomes associated with PIU. Caplan (2003) found that both excessive and compulsive internet use were significant predictors of negative outcomes associated with internet use but also reported that "excessive use was one of the weakest predictors of negative outcomes, whereas preference for online social interaction, compulsive use, and withdrawal [another cognitive predictor] were among the strongest"(pp. 637–638). In another study, Shapira et al. (2000) interviewed people suffering from PIU (defined as engaging in internet use that was uncontrollable, distressing, time-consuming, or resulted in negative outcomes) and found "all(100%) subjects' problematic Internet use met the DSM-IV (American Psychiatric Association, 1994) criteria for an impulse control disorder" (p. 267). Shapira et al. (2000) concluded that, "based on the current limited empirical evidence, problematic internet use may best be classified as an impulse control disorder" (p. 207).

2.3.5 Perception of Internet overuse as a disease

Disease is fundamentally a condition of substantial and prolonged *dis*-ease (suffering), accompanied by significant degrees of physical, social, or vocational impairment (incapacity). So "suffering" must not arise solely as a consequence of society's punitive responses to the patient's behavior. Rather, at least some of the suffering must be intrinsic to the condition itself. In line with this, if a patient diagnosed with IA (by some specified set of criteria) experienced both suffering and incapacity, and further, if the suffering was due at least in part to intrinsic experiential aspects of the manifest condition, then that individual would be experiencing clinical disease. On the other hand, if the patient diagnosed with IA experienced distress or suffering only when society applied punitive sanctions (e.g., prosecuting the patient for soliciting sex using the internet) or only when the internet was not available, the "intrinsic suffering" criterion would not be met. In such cases, we might agree that the individual exhibited socially and vocationally maladaptive behaviors, but not that he or she was experiencing disease (*dis*-ease). So far enough data are not available to conclude that IA is a *disease* but just because someone does not fit criteria for *disease*, (however defined), does not mean that he or she is unworthy of the professional aid and support. Before IA is considered a discrete disorder or disease, we need extensive prospective investigation (Pies, 2009).

Regardless of using the term "Internet addiction", there are people developing a harmful dependence on the internet. Above criticisms are serious limitations with the addiction perspective

which prevents researchers from building detailed theories. Further research is required to build a theory of internet overuse and well-detailed descriptions of key processes involved in internet overuse. Davis has also introduced a cognitive-behavioral theory of PIU but it is still new, and requires further development(Caplan, 2002).The distinction between IAD and other psychiatric illnesses is at best tenuous (weak). Again it is unknown whether IAD is a distinct behavior, or a subset of another psychiatric illness, as suggested by some studies (Shapira et al., 2003).However, growing research suggests that some individuals with internet addiction are at significant risk and need the professional care and treatment. Carefully controlled studies are required to settle these controversies.

2.4 Addiction in DSM-5

The word *Addiction* is not applied as a diagnostic term in this classification of DSM-5, although it is in common usage in many countries to describe severe problems related to compulsive and habitual use of substances. The more natural term substance use disorder is used in DSM-5 to describe the wide range of the disorder, from a mild form to a severe state of chronically relapsing, compulsive drug taking. Some clinicians will choose to use the word *Addiction* to describe more extreme presentations, but the word is omitted from the official DSM-5 substance use disorder diagnostic terminology because of its uncertain definition and its potentially negative connotation.

In addition to the substance-related disorders, this chapter (Substance-related and Addictive Disorders) also includes gambling disorder, reflecting evidence that gambling behaviors activate reward systems similar to those activated by drugs of abuse and produce some behavioral symptoms that appear comparable to those produced by a substance use disorders. Other excessive behavioral patterns, such as internet gaming, have also been described, but the research on these and other behavioral syndromes is less clear.

Chapter 3

Assessment and therapeutic approaches to Internet overuse

3.1 Assessment

It is important to be aware of how best to assess patients for suspected internet addiction, as a good assessment will help the clinician to formulate an effective treatment plan. The recommended format for the initial assessment interview is essentially the same as that for a standard psychiatric interview. The clinician will have to take the history of the client which comprises presenting complaints, and past, psychiatric, family and personal histories and mental state examination. In eliciting the history of presenting complaints, particular attention should be given to getting a clear and comprehensive picture of the nature and extent of internet use. It is best to trace chronologically the onset of internet use, progression, perpetuating factors and abstinence attempts.

It is important to ask about how much time a person spends on the internet each day/week, what applications/ activities are used and how has internet use affected your day-to-day life like interpersonal, social and vocational life. (Murali, & George, 2007)Young (1999) recommended that these areas be explored during the course of the clinical interview, applications, emotions, cognitions and life events. Applications refers to the specific types of activity (e.g. games, chat rooms, search engines, pornography) to which the patient devotes most time. It is also important to ask the individual how they feel emotionally when online and off-line. For some people, internet use is an attempt to block out unpleasant emotions; for others it results in pleasant and gratifying emotions. Once specific emotional triggers are identified, appropriate interventions can be formulated. Patients who find it difficult to describe their emotions can be encouraged to maintain a ‘feelings diary’. Maladaptive cognitions (e.g. low self- esteem and other depressive cognitions) can trigger excessive internet use. It is therefore important that underlying cognitive distortions are identified and addressed appropriately as part of treatment. Life events or ongoing stressors can trigger or perpetuate excessive internet use as an attempt to ‘dull the pain’. Hence the patient’s current life situation should be explored for opportunities for intervention. Psychiatric co-morbidity should also be suspected as internet addiction is rarely the sole psychiatric disorder in a patient. The most common are affective disorders, other addictive disorders, impulse control disorders and personality disorders. Conversely, before labeling someone an internet addict, it should be established that the symptoms of Internet addiction are not secondary to an underlying psychiatric disorder such as mania, depression or psychosis, or to psychosexual disorders. (Murali, & George, 2007)

3.2 Diagnostic and assessment tools

The concept of internet addiction has only been the object of preliminary studies. Griffiths, active in the gambling research area, was quick to point out the problems related to excessive Internet use (Griffiths 1995b, 1998).Goldberg (1996) was the first to empirically focus on the addictive and dependence-producing potential of internet use. He constructed a rating scale, Internet Addictive Disorder (IAD) with seven diagnostic criteria, mainly adapted from DSM-IV (1994). Brenner (1996) developed a scale, Internet-Related Addictive Behavior Inventory (IRABI), with 32 true-false questions about excessive Internet use, to survey world-wide internet users. Morahan-Martin and Schumacher (2000) introduced their scale Pathological Internet Use (PIU), with 13 questions, mainly similar to the DSM-IV criteria. Young (1998) introduced a Diagnostic Questionnaire (YDQ) for 'Internet addiction', with eight items, partly adapted from DSM-IV. Later she revised the tool and she gave Internet Addiction Test which measures the level of addiction. It consists 20 items based on DSM-IV criteria for pathological gambling. According to her, an internet user could be classified as dependent if he or she met four or more of those criteria over a twelve month period. Young (1999) used an electronic survey and a phone interview. She found differences in frequency of use and types of activities. Internet addiction was highly correlated to academic achievement, relationships, financial, and with work-related problems, as well as with substance abuse. Davis (2001b) developed the Online Cognitions Scale (OCS) which is a 36 item assessment and it is designed to measure problematic internet use. The validation of OCS supported the idea that PIU consists of more dimensions than spending an extreme amount of time online (DiNicola, 2004).

3.2.1 Criticisms of diagnostic instruments

Beard (2005) eloquently summarized the key criticisms of the diagnostic instruments listed above. First, as they are based on different theoretical frameworks there is limited agreement between them on the crucial component, dimensions of internet addiction. Second, most are self-report instruments and hence are dependent on the respondent answering questions honestly, but none incorporates a 'lie scale' to correct for this. Third, none identifies the specific internet applications (e.g. chat rooms, email, and pornography) to which the user is addicted. None of the instruments discussed has undergone rigorous testing of reliability and validity and none wholly captures the various dimensions of excessive internet use and its wide-ranging consequences. This explains the lack of a universally acceptable gold standard assessment or diagnostic tool. In view of these limitations, it is advisable to rely heavily on the clinical interview and to use diagnostic tools only within a comprehensive framework of clinical assessment (Murali, & George, 2007).

3.3 Treatment of internet addiction

For the impact of Internet overuse, authors suggest that heavy internet use may not result in negative effects if online friendship is a part of overall friendship patterns. Addictive tendencies develop gradually, and problems related to Internet use arise when participants give up most of their leisure activities to pursue online pleasures (Chou, 2001; Tsai & Lin, 2003). But if real life leisure time activities are replaced by maladaptive behavior towards the Internet then we can say that a person is abusing Internet.

There is lack of awareness about the disorder, as well as the need for educational programs to increase knowledge about IAD. The goal of Internet addicts should not be to stop using the Internet altogether, but rather to use the medium in a productive, healthy, and controlled way. There is also a need for the development of effective treatment protocols to handle the increase in registered cases of Internet addiction. Proper clinical assessment should include the extent of Internet use, specific online activities conducted, level of impairment, current social support, interpersonal skills, and family dynamics, among other factors (Chou, 2001; Young, 1997).

3.3.1 Coping activities & strategies

A person can regulate his Internet overuse by indulging in productive use of the internet. People are using coping activities to prevent internet overuse, but the greatest challenge for them was their inability to limit or control the time they spend online. According to the researchers, coping activities appeared to be transitional, essentially only helping participants to pass time until their next log in. To curb their addictive tendencies, subjects engage in real-life activities such as shopping, reading printed novels, doing laundry, making phone calls, and visiting friends' homes. These studies suggest that participants were mostly not aware of Internet addiction as a new disorder, and, as such, did not know where or how to find help. Some participants in the studies examined did not consider getting outside help for their addiction because they thought it was a personal or minor problem (Chou, 2001).There are certain strategies for pathological internet use, like, practice the opposite, external stoppers, setting goals, reminder cards, personal inventory, abstinence, support groups, family therapy and cognitive therapy. The list is not comprehensive, but addresses the major interventions utilized within the experimental online consultation service (Young and Suler, 1997).

3.3.2 Cognitive Behavior Therapy-Internet Addiction (CBT-IA)

Cognitive Behavior Therapy (CBT) is recommended by many researchers. The basic idea behind all cognitive therapies is: many mental disorders stem from faulty or distorted modes of

thought. Change these, and the disorders, too, can be alleviated. Aaron Beck (1985) devised a CBT for alleviating depression. Beck assumes that depressed individuals engage in illegal thinking and that this underlies their difficulties. According to Beck, such distorted thinking leads individuals to have negative moods-which, in turn, increase the probability of more negative thinking. How can this vicious circle be broken? In contrast to rational-emotive therapy, Beck's cognitive approach does not attempt to disprove the ideas held by depressed persons. Rather, the therapist and client work together to identify the individual's assumptions, beliefs, and expectations and to formulate ways of testing them (Baron, 2011).

This very idea of CBT is used to treat Internet addiction. It is called Cognitive Behavior Therapy (CBT-IA). With Internet addicts, it has been suggested that the early stage of therapy should be behavioral; focusing on specific behaviors and situations where the impulse control disorder causes the greatest difficulty. As therapy progresses, the focus is more on the cognitive assumptions and distortions that have developed and the effects of these on behavior. CBT-IA is a new and untested therapy. While many researchers have suggested treatment approaches to address Internet addiction, little has been studied on actual therapy outcomes (Young, 2013).Individuals who suffered from this have frequently complained that they have been unsuccessful in finding knowledgeable professionals or support groups specializing in Internet addiction recovery as this is still, a relatively new and often unrecognized affliction. Traditional abstinence models of addiction are not practical interventions as Internet use has several academic and professional benefits. In this relatively new field, outcome studies are not yet available. Some researchers even feel that Internet addiction is self-corrective. Keicler (2005) said that Internet addiction is a fad illness. She said that TV addiction is worse. In her study, she observed that majority of the subjects had sharply reduced their time on the computers over the course of a year, which indicates that even problematic use was self-corrective (Saison, Smith, Robinson, Segal, 2013).

Internet addiction is prevailing in so many countries but some of the most interesting research on Internet addiction has been published in South Korea. South Korea considered Internet addiction one of its most serious public health issues. The government estimates that approximate 210,000 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 counseling. China is also greatly concerned about the disorder. About 10 million teenagers meet the criteria for Internet addiction. As a result, China has begun restricting computer game use; current laws now discourage more than 3 hours of daily game use. In the United States, accurate estimates of the prevalence of the disorder are lacking. Unlike in Asia, where Internet cafes are frequently used, in

the United States, games and virtual sex are accessed from home. Attempts to measure the phenomenon are clouded by shame, denial, and minimization. The issue is further complicated by co-morbidity. About 86% of Internet addiction cases have some other DSM-IV disorder. In the United States, patients generally present only for the co-morbid conditions. Thus, unless the therapist is specifically looking for Internet addiction, it is unlikely to be detected. In Asia, however, therapists are taught to screen for it (ajp.psychiatryonline.org, 2008).

There are gender differences too in internet addiction. Many studies, including Greenfield's, reported that there are more male internet addicts than females. But other psychologists like Kimberly Young, find that both men and women are same in number but they prefer different sites according to their behavioral stereotypes. According to a study by Alvin Cooper, women were more likely to spend time flirting or having cybersex with others in sexually oriented chat rooms, while men were drawn to porn web sites (DeAngelis, 2000).In an American study in 2005, the percentage of men using the Internet was very slightly ahead of the % of women, although this difference reversed in those under 30. Men logged on more often, spent more time online, and were more likely to be broadband users, whereas women tended to make more use of opportunities to communicate (such as e-mail). Men were more likely to use the Internet to pay bills, participate in auctions, and for recreation such as downloading music, and videos. Men and women were equally likely to use the Internet for shopping and banking. More recent studies indicate that in 2008, women significantly outnumbered men on most social networking sites, such as Face book and MySpace, although the ratios varied with age. In addition, women watched more streaming content, whereas, men downloaded more. In terms of blogs, men were more likely to have a professional blog, whereas women were more likely to have a personal blog (Moreno, Jelonchick, Chrislakis, 2013).

In fact there are so many questions about internet addiction, starting from the term itself to its emotional, psychological and social effects on human beings, purposes to use the internet, gender differences, co-morbid relationships of Internet with other disorders, diagnostic criteria, different applications of the internet, and whether Internet addiction itself is a disorder or it is a symptom of other underlying disorder and many more. All these questions will remain unanswered until more controlled studies are done. This research will try to understand the difference between two genders on internet overuse and will examine how much time each gender spends on internet, which activities they are engaged in on internet and for what purpose they use internet.

3.4 Co-morbidity of internet overuse with other disorders

In clinical terms, psychiatrists should first decide if the patient's Internet Addiction (IA) symptoms represent expressions of a well-recognized, existing diagnosis, such as bipolar disorder, major depressive disorder, schizophrenia, or OCD. Careful attention should be paid to "which came first" (e.g., did the patient first develop depressive symptoms, followed by symptoms of IA? Or did the depression begin only after IA symptoms were well established?) Family history may also be a clue (e.g., if there is a strong family history of mood disorder, the clinician might suspect a form of "secondary IA.) Similarly, if there is a strong family history of impulse control problems or OCD, the patient's IA symptoms might be evaluated in this light. Some individuals exhibiting severe overuse of the internet are in danger of serious emotional and physical complications. However, it is too soon to consider IA a full-fledged and discrete mental disorder. Rapid development of uniform diagnostic criteria and a vigorous research effort aimed at understanding the nature of this condition is very much needed (Pies, 2009).

3.4.1 Depression/loneliness & internet overuse:

Research shows that internet addiction is related to depression and loneliness. One of the common aspects of internet addiction is frequent time of distortion. Young found in her studies that social isolation was directly associated with compulsive internet use. Greenfield (1999) said that online addicts are so much preoccupied with their online use that they are not able to manage main aspects of their lives. They spend less time with family and friends and gradually ignoring them for solitary time in front of the computer. It is associated with negative effects on an individual such as decreases in the size of one's social circle, and increases in depression and loneliness. Furthermore they claimed that online weak ties were being established which were of poorer quality compared to the types of relationships and strong ties already established offline. The contrasting view to the internet causing loneliness is that lonely people have a greater desire to use the internet and can even benefit from doing so. As Morahan-Martin and Schumacher (2003) have stated: The internet provides an ideal social environment for lonely people to interact with others. Not only does it provide a vastly expanded social network, but also it provides altered social interaction patterns online that may be particularly attractive to those who are lonely. Researchers also want to know whether lonely people assess the internet to improve their psychological well-being (Whitty, McLaughlin, 2007). As Morahan-Martin, 2003 said, the internet gave lonely people a vehicle for both communication and recreation, often providing a safe and fun social life that was denied in real life. Many turned to the internet to escape from the pressures and discomfort of their lives. However, the direction of this relationship is uncertain Morahan-Martin, Schumacher, 2003).The problem of internet overuse and

thereby loneliness or vice versa is prevailing across all age groups. Again the question is same: which one is the cause and which one is the effect? Shaw and Gant (2002) also found that increased internet usage was associated with decreased levels of loneliness and depression and increased levels of social support and self-esteem. Oldfield and Howitt (2004) found that those who spent more time on emails were less likely to be lonely. They also say that instead of treating the internet as one entity, various applications of the internet, like chatting, shopping, entertainment, and banking should be considered.

3.4.2 Social anxiety, social phobia, ADHD & internet overuse:

There is also relationship between social anxiety and internet use. Social anxiety is often associated with general anxiety and depression which in turn may negatively influence ability to cope in social interactions. In relation to this it has been argued that socially anxious individuals may use internet as a medium to regulate their social fears and related distress, particularly loneliness, depression, anxiety, and low self-esteem. The internet fulfills social needs for those who have difficulty establishing social relationship. It also provides social connectedness and a sense of belongingness. Because it also provides anonymity, it is possible to be less inhibited and intimidated (Shepherd, Edelmann, 2005).Social phobia has been reported to be positively associated with internet use in adolescents. Hostility has been noted to be associated with substance addiction in adolescents. Yet the association between social phobia and internet addiction OR the association between hostility and internet addiction has not been evaluated. ADHD symptoms, both in inattention and hyperactivity– impulsivity domains, had significant positive correlations with the degree of internet addiction. The internet addiction group had greater ADHD symptoms compared with the non-addiction group. The ADHD group had a greater severity of internet addiction than the non-ADHD group. Vice versa is also true. These findings may suggest that ADHD symptoms, both in inattention and hyperactivity-impulsivity domains, may be, potentially, important risk factors for internet addiction.

3.4.3 Other clinical disorders & Internet overuse

In addition to this, internet addiction appears to be co-morbid with clinical disorders and pre-morbid symptoms. Internet addiction has been reported to be co-morbid with depression and insomnia (Cheung & Wong, 2011), suicidal ideation (Fu, Chan, Wong, & Yip, 2010), attention-deficit hyperactivity disorder, social phobia, and hostility (Ko, Yen, Chen, Yeh, & Yen, 2009), schizophrenia, obsessive-compulsive disorder (Ha et al., 2006), aggression (Ko, Yen, Liu, Huang, & Yen, 2009), drug use (Gong et al., 2009), and problematic alcohol use (Ko et al., 2008). These comorbidities may be suggestive of a bidirectional causality relationship and similar etiology (Ko, Yen, Chen, Chen, & Yen,

2008; Mueser, Drake, & Wallach, 1998), and increased severity of psychopathology relative to a single presenting mental health problem (de Graaf, Bijl, Spijker, Beekman, &Vollebergh, 2003). In light of this, internet addiction cannot be dismissed as a transitory phenomenon that will take care of itself. Instead, it appears important to establish and explore a diagnosis that may prove beneficial for people who experience similar and related problems (King, Delfabbro, Griffiths, &Gradisar, 2012). Like other disorders and addictions, internet overuse too needs treatment and preventive measures. Use of the internet is a way to escape from problems or to relieve a dysphonic mood. Being addicted to internet can also cause physical discomfort or medical problems such as: Carpel Tunnel Syndrome(pain and numbness in hands and wrists), dry eyes, strain vision, neck aches, backaches, severe headaches, sleep disturbances, pronounced weight gain or weight loss, failure to attend to personal hygiene and sleep disturbance and eating irregularities (such as skipping meals)(www.addictionrevov.org).

Chapter 4

Rationale and Objectives

4.1 Rationale

Publication of DSM5 in 2013 influenced this researcher to work on this topic. In DSM-5, Internet Gaming Disorder is identified in Section III as a condition warranting more clinical research and experience before it might be considered for inclusion in the main book as a formal disorder. Internet is now an integral, even inescapable part of many people's daily lives; they turn to it to send messages, read news, conduct business, and much more. But recent scientific reports have begun to focus on the preoccupation some people develop with certain aspects of the Internet, particularly online games. The "gamers" play compulsively, to the exclusion of other interests, and their persistent and recurrent online activity results in clinically significant impairment or distress. People with this condition endanger their academic or job functioning because of the amount of the time they spend playing. They experience symptoms of withdrawal when pulled away from gaming. The studies suggests that when these individuals are engrossed in Internet games, certain pathways in their brains are triggered in the same direct and intense way that a drug addict's brain is affected by a particular substance. The gaming prompts a neurological response that influences feelings of pleasure ad reward, and the result, in the extreme, is manifested as addictive behaviour. Many people turn to Internet to

manage unpleasant feelings such as stress, loneliness, depression, and anxiety but they should remember that there are healthier ways(and more effective) to keep difficult feelings in check like, exercise, meditation, and simple breathing exercises. A person is at greater risk of Internet addiction if he suffers from anxiety, depression, other addictions, lack social support or stressed.

Further research will determine if patterns of excessive online gaming are detected using the proposed criteria. At this time, the criteria for this condition are limited to Internet gaming and do not include general use of the Internet, online gambling, or social media. By listing Internet Gaming Disorder in DSM-5 Section III, APA hopes to encourage research to determine whether the condition should be added to the manual as a disorder. DSM-5 says that not enough research has been done on this topic to prove Internet use, overuse or abuse as an established addiction. Still, some good research has been done by few psychologists and they have published interesting articles on this topic to prove that people are getting addicted to the Internet and the symptoms are similar with that of other established addictions.

Internet addiction disorder, or more broadly, Internet misuse, problematic computer use or pathological computer use, is excessive computer use that interferes with daily life. These terms avoid the term addiction and are not limited to any single cause. Over a past decade, the concept of internet addiction has grown in terms of acceptance as a legitimate clinical disorder often requiring treatment. Researchers are divided over whether internet addiction is a disorder on its own or a symptom of another underlying disorder. There is also debate over whether it should be classified as an impulsive-control disorder or an obsessive compulsive disorder rather than an addiction. 25% of users fulfill internet addiction criteria within the 1st 6 months of using the internet.

Dr. Kimberly Young who supports the view that Internet overuse is an addiction, has lobbied for the recognition of Net use as a distinct chemical disorder. She says that Internet addicts suffer from emotional problems such as depression and anxiety-related disorders and often use Internet to psychologically escape unpleasant feelings or stressful situations. Addicts were known to use the Internet an average of 38 hours a week for nonacademic and non-employment purposes resulting in poor grades among students, discard among couples, and reduced work performance. Mark Griffiths (2001) in his essay comes to the conclusion that the Internet does meet the criteria for addiction in a small number of users. Patricia Wallace (2001), argues that, based on the case histories that have surfaced, no one denies that excessive involvement with certain psychological spaces on the net can have serious effects on a person's life. In opposition, many researchers say that Internet Addiction disorder is not a true addiction and may in fact be no more than a symptom of other existing disorder--

like depression, anxiety, impulsive control disorders, or pathological gambling. It is possible that a person could have a pathological relationship with a specific aspect of the Internet, like online auctions, pornography or gambling, but that does not make Internet medium itself addictive.

If we compare the diagnostic criteria for Internet abuse and substance abuse, we can see that mood modification, tolerance and withdrawal are common in both, which indicates that people are getting addicted to Internet as they get addicted to other substances. Mark Griffiths in his article," Internet Addiction: Fact or Fiction?" May, 1999, posed two questions: Does Internet Addiction really exist? And if it does exist, what are people actually addicted to? These questions are explored by examining core components (i.e., salience, mood modification, tolerance, withdrawal, conflict, and relapse) of *bone fide* as and then relating them to excessive Internet use. Taking all the study and survey evidence together, it can be argued that excessive usage in a majority of cases appears to be purely symptomatic(i. e., the Internet is being used as a tool to engage in other types of rewarding behaviour, like being in a relationship). However, Internet Addiction may be prevalent in a significant minority of individuals.

People of all age groups and all professions are using internet but it is believed that students may be at the highest risk for developing problematic Internet use, in part because for many students, online access is free, fast, and available all the time. Students who use the Internet excessively are also very likely to favour online activities over sleep, and in at least one study, only sleep patterns distinguished high users from low users. Many students become so involved with using the Internet that they miss the class or skip exams, even when they know they might fail their classes. However, it may not be practical to label students "Internet addicts" based purely on excessive use, as it is often necessary for them to use the Internet to do their schoolwork. For lonely individuals, Internet is a kind of boon. Lonely individuals differed markedly from the non-lonely in how they use the Internet socially. Compared with others, they use the Internet and e-mail more and more and were more likely to use the Internet for emotional support, to meet new people and to interact with others with similar interests. Lonely individuals were more likely to prefer online to face-to-face communication, to enjoy the anonymity of online communication, and to lurk. Online, they felt more themselves, opened up more, shared intimate secrets, were friendlier, and role-played more than others. Compared with others, those who were lonely felt that going online had made it easier for them to make friends.

There is a relationship among people's Internet use, psychological health, and negative outcomes at home and work (e.g. Beard and Wolf,2001; Brenner, 1997; Davis, 2001; Morahan-Martin & Schumacher, 2000; Pratarelli, et al., 1999; Sanders et al., 2000; Shotton, 1991; Young, 1996,1998).

Various labels are used to describe people who engage in excessive use of the Internet that results in negative outcomes including "Internet addicts, computer-mediated communication addicts, and computer junkies". Yet, despite the evidence indicating some dysfunctional quality of Internet use, research in this area is relatively underdeveloped--primarily because it lacks empirically testable theories that explain how PIU is associated with psychosocial well-being and negative outcomes at work and home.

Even for treatment of Internet addiction, researchers have recommended cognitive behaviour therapy which is used to treat some mental disorder like depression. The basic idea behind all cognitive therapies is: many mental disorders stem from faulty or distorted modes of thought. Change these, and the disorders, too, can be alleviated. CBT in general allows addicts to understand addictive feelings and actions while learning new coping skills and ways to prevent relapse. CBT usually requires three months of treatment or approximately twelve weekly sessions. With Internet addicts, it has been suggested that the early stage of therapy should be behavioral, focusing on specific behaviors and situations where the impulse control disorder causes the greatest difficulty. In treating Internet addiction, abstinence recovery models are not practical as computers have become such a salient part of our daily lives. Clinicians have generally agreed that moderated and controlled use of the Internet is most appropriate to treat the problem (Young, 2010). Given the dynamics involved with Internet addiction, CBT-IA was developed to address the unique features of the problem.

From this matter, it is understood that people may get addicted to the Internet and show similar symptoms which they show when getting addicted to other chemical substances. For treatment of Internet addiction, CBT can be used which again is used for some mental disorders like depression. Though very limited research is done on this topic, further research may throw some more light and make things clear on this matter. Purpose for this research is not just to study whether Internet abuse is an addiction or not, but also to know the purposes to use Internet. For what purposes people use Internet, how these purposes change with growing age and time, and which purposes make them to abuse Internet. After so much of research on Internet, there is no consensus whether it is a compulsion or addiction so it will be worth analyzing whether Internet use/overuse/abuse can be categorized as an addictive behaviour. DSM-V has put Internet Gaming Disorder under further research so till now there has not been sufficient research to support Internet abuse as Internet addiction. Thus, this research to match the behaviour of compulsive use of Internet with that of other established addictive behaviour might help to understand the addictive status of Internet overuse. Also it is not clear in the literature that what extent or type of use of Internet drives one to get addicted.

Research about the effects of the Internet is still in its infancy, and needs to be qualitatively and quantitatively improved. There is no doubt that some Internet users develop problematic behaviour. Most of these are probably vulnerable people who often have a history of impulse control and addictive disorders, and whose abnormal behaviour is a response to specific online content and activities. Hope this research will give some insight on this issue.

4.2 Research Gaps

Despite the topic's prominence, published studies on Internet addiction are scarce. Most are surveys, marred by self-selecting samples and no control groups. The rest are theoretical papers which provide no data. Sara Kiesler(1998) a researcher at Carneige Mellon University finds it misleading to characterized behavior as "addictions" on the basis that people say they do too much of them. She further said that no research has yet established that there is a disorder of Internet addiction that is separable from problems such as loneliness or problem gambling, or that a passion for using the Internet is long-lasting. According to her it's also important to examine whether people's Internet use ebbs and flows over time and why (DeAngelis, 2000). But many psychologists are plunging into internet addiction research as they are fascinated by its emotional, psychological and social implications. They are finding people who spend so much time online which create problems in their marriages, families and work. In addition, researchers speculate that certain unique aspects of the Internet may lure individuals into trouble they might otherwise avoid. David Greenfield (1999) said that the Internet is unlike anything we have seen before. It's a socially connecting device that's socially isolating at the same time. Regardless of the technical definition of Internet addiction, there is clearly something unique and powerful going on there (www.virtualaddiction.com).

Few other limitations are, the researchers mostly used online surveys both open- and close-ended to collect data and were followed by semi-structured interviews but none of them examined used focus groups as a data collection method, and only one study (Chuang,2006) used observational techniques for gathering data. Although over 10 years of the literature is available on the internet addiction phenomenon, theory development is urgently needed. Only Davis proposed theoretical framework of Pathological Internet Use. There is a serious lack of survey research. (Douglas A, et al, 2008). Another limitation is that the large amount of research data have been obtained via the internet itself, which possibly biased results (Young, 1997; Eppright *et al*., 1999). It has been suggested that a more valid research method would include a survey conducted on-line with a randomly selected population (Voss, 1996). Researchers were not clear about what populations are likely to be affected by IAD (Brody, 1996; OReilly, 1996; Kraut, Lundmark, Kiesler *et al*., 1998). It would seem beneficial

to narrow the field of research to one target population. None of the above mentioned researchers conducted their research on varied population; they used one or the other particular age group which again limits the findings. Large Sample with varied population comprising different age groups, occupations, purposes of using internet and time spent on internet is required to get more clarity on internet addiction. Different researchers use different tools for their respective research which could be another limitation to reach at to consensus on internet addiction.

4.3 Objectives

1. To construct an instrument to measure the nature of internet overuse and standardize it.

2. To investigate whether Internet overuse fulfills the criteria to be designated as an addiction or compulsion, like other established drug-ingested addictions.

3. To see the difference in the pattern of Internet overuse in terms of hours of use, use of different web-sites, different purpose of internet use, use of different gadgets/ devices on physical and psychosocial behavioral outcomes of different demographic groups like age, gender and occupation.

4. To study the prevalence of Internet overuse across different age groups.

5. To study the relationship between different purposes of Internet use and Internet overuse.

6. To identify the patterns of Internet use that leads to Internet addiction.

7. To understand the profile of different groups of participants in terms of purposes and hours of internet use.

Chapter 5

Scale Development

5.1 Item writing/adaptation

There are certain tools available to diagnose internet overuse like Internet Addiction Diagnostic Questionnaire (DQ) by Kimberly Young and Brenner's Internet related Addictive Behavior Inventory. They are widely used but they are not standardized tools. DQ is of 20 items and it is a 5 point scale. It focuses on escape, compulsion, neglecting duties, anticipation, lack of control, social avoidance and examines symptoms of addiction like preoccupation with internet use, ability/inability to control online use, hiding/lying about online use and continuing online use despite negative consequences of the behaviour. Brenner's Internet-related Addictive Behavior Inventory comprises 32 items about excessive internet use with true/false options. Many researchers have done good work on co-morbid nature of internet and tried to study how internet is used by individuals who have other mental disorders like depression, loneliness, phobia, ADHD and anxiety. Some have studied the effect of internet on other factors like self-efficacy and attitude. They too constructed their own tool as no standardized tool was available for such a vast use and effects of internet. Various other tools were also referred by this research scholar to understand the nature of internet overuse and its co-morbid nature which can help to construct a better tool on internet overuse. Other tools are:

- Generalized pathological Internet Use scale.
- Proposed criteria for Problematic Internet use by Shapira et al.
- Scale for Loneliness by Morahan-Martin
- Caplan's criteria for Problematic Internet use
- Symptoms of Pathological Internet Use (PIU) by R A Davis
- Children's depression Inventory (CDI, KOVACS, 1992)
- Social Anxiety Sub-scale. Revised version of Screen for child anxiety related emotional disorder.
- Chen Internet Addiction Scale (CIAS)
- ADHD Self-rated scale
- The centre for epidemiological studies' depression scale (CES-D)
- Social phobia inventory
- Pathological use Scale by Morahan, Martin, Schumacher
- Internet Self efficacy Scale by Eastin and LaRose (2000)

- UCLA Loneliness Scale (Russell, 1996)
- Online Entertainment Scale
- Preference for online social interaction
- Internet Behavior and Attitude Scale
- Beard and Wolfe's diagnostic criteria
- Social Phobia Inventory and social Interaction Anxiety Scale

A list of items was prepared on the basis of above tools. Overlapping items were also retained and out of them the items more suitable for the tool for this research, were decided by the experts. The list was of 281 items with different diagnostic criteria like:

Withdrawal, tolerance, impulsive use, salience, negative social outcome, negative academic/occupational outcome, time management, health problems, physical problems, guilt, anxiety, depression, loneliness, feelings of helplessness, confidence, disadvantages, social phobia, distraction, ADHD, self-efficacy, competency, security, leisure, entertainment, productive use, social comfort and advantage.

5.2 Expert validation

On the basis of comments given by the experts, 214 items were selected out of 281 items. The items which were repeated were eliminated. Remaining items were retained with their respective factors. The list of these items was given to the experts to validate them on four criteria: Readability, Appropriateness, Communicability and Understanding.

The experts were of different professions. Panel of experts comprises four psychiatrists, two of whom have private clinic and other two psychiatrists are associated with government hospital. Five clinical psychology teachers from two universities too evaluated the questionnaire.

On the basis of experts' suggestions 103 items were modified or rejected from the scale. The criteria were Repetition, Similarity, Communicability & understanding, Specification (time/money/content), Segregation (physical/psychological) and Broad and unclear respectively. Number of items eliminated or added in the dimensions is presented in table 1.

Table 1: Changes in identified parameters

Dimensions	Number of items eliminated/added
Withdrawal	12
Tolerance	5
Compulsion	9
Impulsive use	3 &1 added
Salience/Functional impairment	4
Loneliness	9
Socially liberating	17
Social confidence	1
Distraction	all
Social comfort	None
Advantages	19
Disadvantages	17
Entertainment	All
Productive use	All

The details of changes in the items:

On the basis of experts' comments, many changes were made and some of the major changes are described below:

One of the items in withdrawal says, 'I miss being online and feel lost if I can't excess Facebook/ Twitter.' If a participant doesn't use Facebook or Twitter then she/he could skip the item. For this reason one more general option, 'social media' was included in the item. Now the modified item says, 'I miss being online and feel lost if I can't excess Facebook/ Twitter/any social media.'

On the other hand, in 'tolerance' the item which was looking general, was rephrased and made more specific and understandable.

'I need to increase the amount of time to get the same level of satisfaction'.

It was rephrased and put it as,

'I feel that I need to increase time constantly/ day-by-day to engage in internet to derive the same amount of satisfaction'.

3 items which were about spending money on internet for various purposes were combined in 1 item with 2 options.

- I keep coming back online even though I am aware that I have spent a lot already on,

-online shopping

-downloading apps (games, music)

In compulsion 5 items were added which depict individual's inability to resist checking their mobile while driving.

- Though it is dangerous, I can't resist check my notifications while driving.
- I eat food half- heartedly as internet occupies most of my attention.
- I keep surfing the internet while waiting in a queue/on airport/ on railway station.
- I am not able to resist uploading my pictures on social media as I feel the more I get "likes" and "comments", the more people like me.

These items are constructed on the basis of day-to-day observations around us and the experiences individuals have with the internet. The experts had suggested not to include advantage and disadvantage items in the tool as they are not relevant to addiction or compulsion but still they are retained as this research has some other objectives like,

- Changes in the purpose of internet use with age and responsibility.
- To study how does the purpose of using internet affects the development on internet addiction

A final list of 100 items inclusive of the reverse items was prepared and a pilot study was conducted using this scale.

Chapter 6

Pilot study and final scale construction

6.1 Sample of pilot study

The study was carried out in Vadodara and Anand, Gujarat state. The sample consisted of 70 participants in the range of 15-50 years including males and females. The sample is divided in three age groups, i.e. 15-25 years, 26-35 years and 36-50 years. Occupation wise, the participants comprised of i.e. students, teachers and banking sector.

Table 2:

Sample (N=70)	male	female
Students (13-22 years)	20	20
Professional (23-40 years)	15	15

6.2 Tools for pilot study

Information about demographic parameters was collected. Details about internet use were also collected like; hours of internet use per day, name of the websites/applications used frequently and purpose of using these websites/applications. The scale for internet overuse with 100 items which was finalized from phase I was administered. The factors with the chronbach α have been described in the result section.

6.3 Procedure for pilot study

As the schools willingly supported the research, no prior permission was required to conduct the pilot study. The self-administered scale was given to the participants and the purpose of the research was explained to them. It was administered in the class room only and participants are asked to give the response that first comes to their mind. The scale was collected after two days from professionals. Altogether 62 participants responded out of 70.

6.4 Result of pilot study

After the data was coded and processed properly, it was subjected to factor analysis using SPSS. The purpose was to come up with meaningful clusters of items contributing to factors and to

scrap out the not so good items from the scale. Scree plot is given in figure 1 and the results from the analysis with Eigen values, factor loading and Chronbach alpha are presented in the table no 3.

Table 3: Factors with factor loading and Chronbach alpha

	Items	Factor Loading	Chronbach α
1. Withdrawal	1. If I can't go online, I feel angry.	.890	.967
	2. If I can't go online, I feel irritable.	.871	
	3. If I can't go online, I feel restless.	.871	
	4. If I can't go online, I feel anxious.	.845	
	5. If I can't go online, I feel moody.	.825	
	6. If I can't go online, I feel jittery.	.819	
	7. I use the internet when, I had badinterpersonal experience.	.789	
	8. If I can't go online, I feel memorydifficulties.	.788	

	9. If I can't go online, I feel uncomfortable.	.766	
	10. I use the internet when, I have a bad day.	.733	
	11. I use the internet when, I am angry.	.732	
	12. If I can't go online, I feel depressed.	.699	
	13. I use the internet when, I feel neglected.	.626	
	14. I use the internet when, not gettingattention/importance.	.605	
	15. Online relationship can be more fulfillingthan offline.	.596	
	16. I keep coming back online even though Iam aware that I have spent a lot already on downloading apps (games, music).	.578	
	17. When I am online, I feel totally absorbed.	.546	
2. Cognitive preoccupation & compulsive behaviour	19. My use of the internet sometimes seemsbeyond my control.	.808	.943
	20. I am friendlier online than in real life.	.711	
	21. I prefer communicating with other peopleonline rather than face to face.	.669	
	22. I can get to know a person better on theinternet than in person.	.663	

23. I miss being online and feel lost if I can't access facebook/ Twitter/any social media.	.642
24. I have made unsuccessful attempts tocontrol my internet use.	.623
25. I have reduced my interaction withfamily and friends because of the timededicated to being online.	.612
26. I keep checking my notifications evenbefore some urgent task I have to take up.	.610
27. I find myself constantly thinking about the internet even when offline.	.593
28. My productivity at work has decreased since I have started enjoying beingonline.	.579
29. Though it is dangerous, I can't resist to check my notifications while driving.	.566
30. The 1st thing I do in the morning ischecking my mails.	.553
31. I am more myself online than in real life.	.537
32. I eat food half-heartedly as internetoccupies most of my attention.	.524

	33. Internet makes me calm.	.517	
	34. I am not able to resist to upload my pictures on social media as I feel themore I get "likes" and "comments", themore people like me.	.508	
	35. I spend less time doing activities which I previously found pleasurable like playing outdoor games.	.496	
3.Socialimpairment	36. The internet is more real than real life.	.725	.928
	37. I have more fun with the people online than others.	.692	
	38. I am used to sacrificing sleep time so Ican spend more time online.	.682	
	39. Most of my friends I know are from online chatting.	.680	
	40. I have shared intimate secrets online.	.673	
	41. When I tried to cut down the excessive amount time I spend online, my fingers have done typing movements voluntarily or involuntarily.	.644	
	42. I got into trouble with the school/college authorities or my employer because ofbeing online during school, college/job hours.	.639	
	43. People in my life complain to me about the	.638	

	amount of time I spend online.		
	44. I have stopped going for movies in multiplexes, live shows like concerts and plays, or watching sports matches with friends because I feel I can watch them online.	.634	
	45. When I am offline, I am preoccupied with thoughts about things on the internet.	.586	
	46. I have missed social engagements/events because of online activities.	.559	
4.Occupational & interpersonal Relationship impairment	47. I stay online to escape offline pressure of occupational/ academic responsibilities.	.627	.837
	48. Due to my involvement with the internet, I have jeopardized or lost career opportunity.	.577	
	49. I say or do things on the internet that I could never do offline.	.558	
	50. I neglected regular/ day-to-day household responsibilities to spend more time online.	.551	
	51. Last week, I got less than four hours sleep at night because I was using the net.	.548	
	52. I have lied to family, friends or a significant other like a therapist or an employer to conceal (hide) the amount of time I spend online or the type of contentI access.	.538	

	53. I do not worry about relationship commitment when socializing online.	.509	
5. Perceived control of Internet overuse	55. People in my life complain that I do not participate in online chatting or I am rarely active on the internet.	.675	.647
	56. I do not stay longer on internet than I plan earlier.	.580	
	57. I do not like to get late for my work/school/college.	.565	
	58. I do not like to sacrifice my sleep for the internet/online activities.	.552	
	59. I do not neglect my household chores/office work/academic work because of internet.	.513	
6. Negative consequences of Internet overuse	61. Due to my involvement with the internet, I have jeopardized or lost a significant relationship.	.770	.838
	62. Due to my involvement with the internet, I have jeopardized or lost an educational opportunity.	.592	
	63. Due to my involvement with the internet, I have jeopardized or lost a job.	.586	
	64. I am unable to reduce the amount of time I spend online even though I want to.	.553	
	65. If I can't go online, I feel I cannot think	.520	

	straight.		
7. Perceived advantages of Internet use	66. If it weren't for my computer, I wouldn't have any fun at all.	.666	.628
	67. The internet provides easy access to educational opportunities such as taking a distance learning class.	.636	
	68. The internet helps with groupcommunication.	.486	

The data was analysed using SPSS for analysis. The meaningful factors which could be extracted are, Withdrawal (Chronbach α - .97), Cognitive Preoccupation and Compulsive Behaviour(α - .94), Social Impairment (α - .93), Occupational & Interpersonal Relationship Impairment α - .84), Perceived Control of Internet Overuse (α - .65), Negative Consequences of Internet Overuse (α - .84) and Perceived Advantages of Internet Use (α - .63).This shows that participants who are using internet experience withdrawal, compulsive behavior and social, occupational and interpersonal relationship impairment. Internet overuse can create hindrances in their educational or job related activities. At the same time it also helps them for group communication and fun. Participants are aware about the advantages and disadvantages of internet but unlike other established addictive disorders, they can't abstain from internet as it is an integral part of one's day to day living in modern world.
The names of each factor were given on the basis of underlying connections among all the items and meaningfulness of the factor. It was given to the experts for validation. Total 68 items were retained and 22 items were eliminated as they have very low factor loading. Though the sample size was small, it was done only to eliminate those items which show least correlation. Above are unstable factors and factor analysis was done only to reduce the items.

Chapter 7

Methodology

7.1 Research Design

Table 4

AGE						
Hours of Internet use per week	15 yrs.--25 yrs.		26yrs--35yrs		36yrs--50 yrs	
	Male	Female	Male	Female	Male	Female
14-21	100	100	100	100	100	100
28--35	100	100	100	100	100	100
36and above	100	100	100	100	100	100

7.2 Hypotheses

1. Internet overuse will fulfill the criteria for addictive disorder or compulsion or both.
2. There will be a significant difference in the pattern of Internet overuse in terms of hours of use on physical and psychosocial behavioral outcomes of different demographic groups like age, gender and occupation.
3. There will be a significant difference in the pattern of Internet overuse in terms of use of different web-sites on physical and psychosocial behavioral outcomes of different demographic groups like age, gender and occupation.
4. There will be a significant difference in the pattern of Internet overuse in terms of different purposes of internet overuse on physical and psychosocial behavioral outcomes of different demographic groups like age, gender and occupation.

5. There will be a significant difference in the pattern of Internet overuse in terms of use of different gadgets/ devices on physical and psychosocial behavioral outcomes of different demographic groups like age, gender and occupation.
6. Internet overuse is prevailing among different age groups.
7. There will be significant difference between different purposes of internet use, like productive use and recreation, and internet overuse.
8. There will be different patterns of internet use in terms of time spend on internet, different purposes of using internet, websites surf on internet and gadgets use to access internet which can lead to internet addiction.

7.3 Variables

Independent variables

1. Number of hours of Internet use.

2. Age

3. Gender

4. Occupation

5. Education of the participants

6. Source of the Internet

7. Purpose of Internet use

Dependent variables

1. Psychosocial outcomes of Internet use

2. Physical outcomes

3. Behavioral outcomes

7.4 Operational definition of Variables

- Internet overuse:
    - More than 5 hours a day
    - Used for entertainment purpose

Understanding the nature of internet overuse

- Internet as Addictive Disorder
    - Needs to increase the time on internet to achieve the desired level of satisfaction
    - Is restless or irritable when attempting to cut down the time or stop using internet
    - Has made repeated unsuccessful attempts to control, or stop using internet
    - Often use internet when feeling distressed
    - Lies to family and friends
    - Has jeopardized or lost a significant relationship, job, or educational/career opportunities because of internet
- Compulsion: A repetitive pattern of behavior that a person feels compelled to perform with the aim of reducing anxiety and which leads to decreased productivity and increased time on internet.

7.5 Sample of main study

The sample was selected using the following criteria:

Inclusion-Exclusion Criteria

- Individuals who are in IT profession are excluded from this research.
- Students who are studying IT related courses like computer engineering, bachelor in computer science or bachelor and masters in computer applications and other courses, are excluded.
- Those suffering with some or the other mental disorders are excluded from this research.
- Individuals who are suffering with substance abuse are excluded from this research.

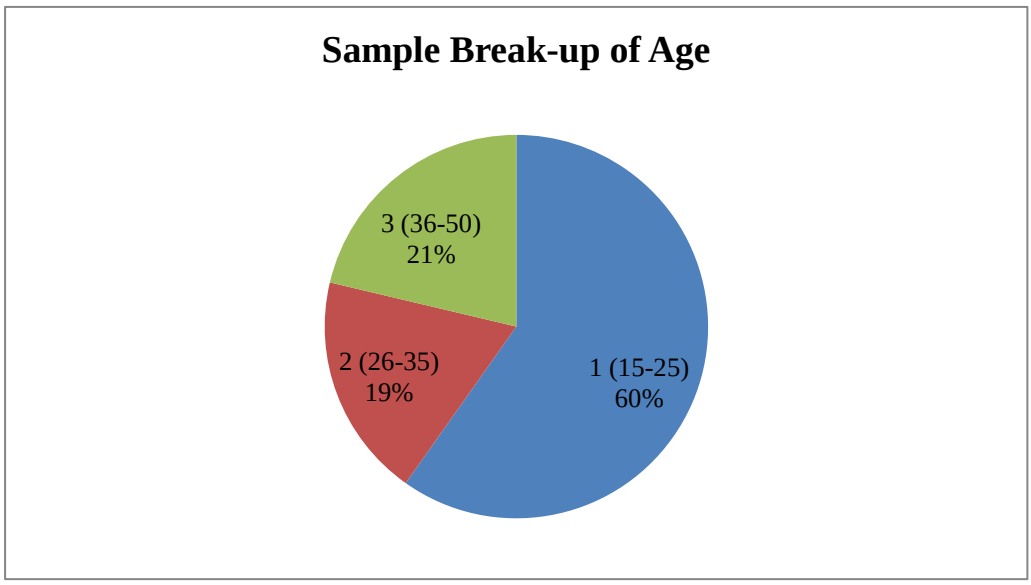
The sampling may be considered as semi random sampling as most of the data was collected google forms. The sample consists of 2124 subjects from different occupations, i.e. students, teachers and working sector in the range of 15 to 50 years of age including males and females. The sample was selected from Gujarat. Google form was created for those whom the researcher targeted as her sample, but was unable to access them personally. Participants belonging in 15-25 years age group include students from schools and colleges. Participants in the range of 26 to 35 years of age comprised of adults (males and females) who are working in different sectors. Out of total sample, 60% are of 15-25 years of age, 19% from 26-35 years and 21% belong to 36-50 years of age. Females have responded more to the scale compare to males. They are 57% and 43% respectively. Students have responded the most, i.e. 56% to the scale, while 39% participants are doing job and 5% are self-employed. In terms of education, 30% participants are 10^{th} pass, 3% are 12^{th} pass, 26% are graduates and 41% participants

are post graduates. WhatsApp, Facebook and Instagram are used by 17% of participants while YouTube, Twitter and Google are used by 14% of the sample. 32% are using all 6 websites mentioned above and 20% opted for 'others' option. Almost half of the participants, i.e. 55% use internet for productive reasons and recreation both while 33% use internet for productive purposes and 9% use it for recreation only.

The sample represents all the strata, students within the age group of 15-25, working class people (both men and women), businessmen/women, individuals who are self-employed in the age group of 25 to 50. All of them are using internet for various purposes. Individuals are from different linguistic background, ethnic groups, subcultures and different religious backgrounds.

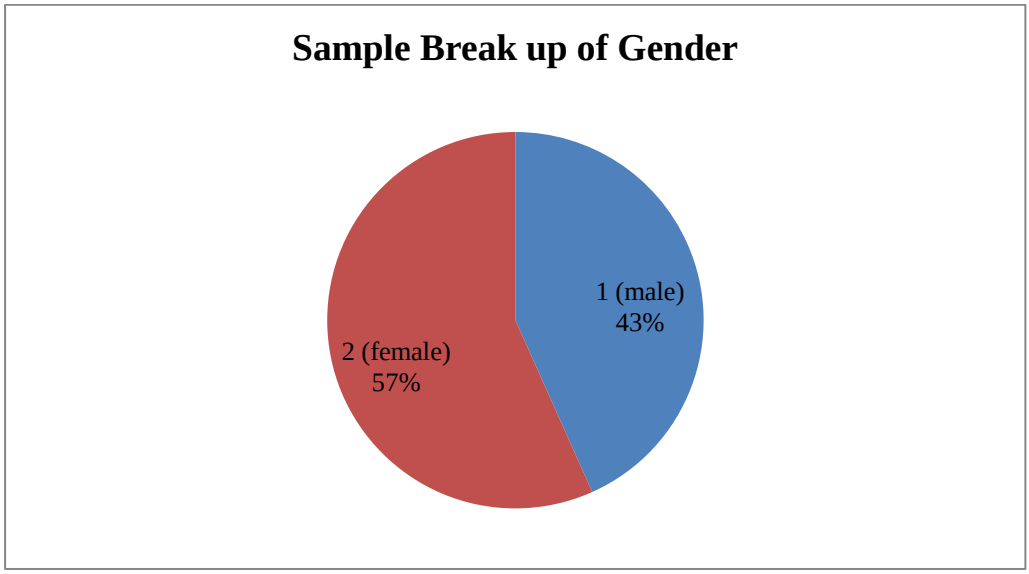
7.5.1 Sample break-up

1. AGE



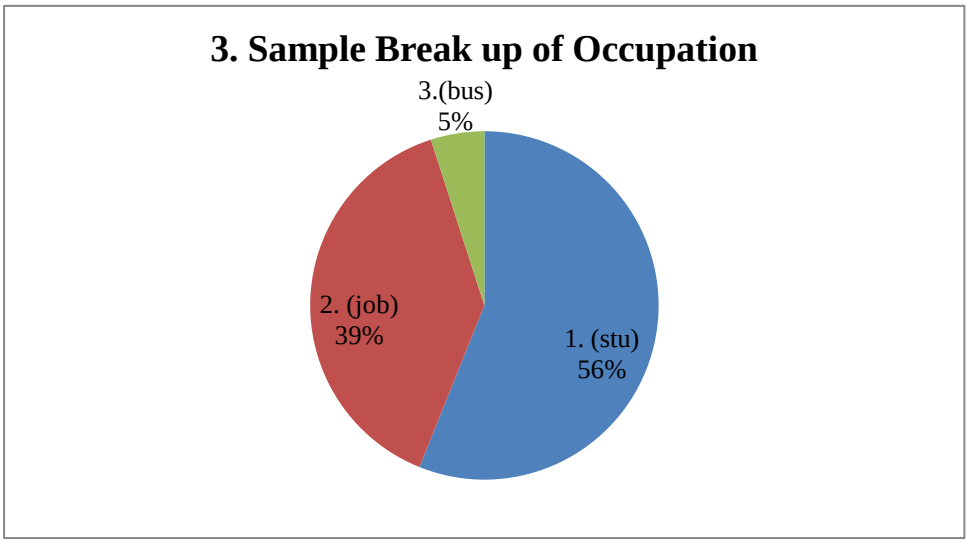
Above pie chart of AGE shows that out of 2124 subjects, 1270 are of 15-25 age group, 401 are of 26-35 age group and 453 are of 36-50 age group. The scale was given to school students in person. They filled and returned the scale after few minutes. Subjects above 22 years of age were given a Google form through email or through other sources like Whatsapp, SMS and Facebook. Many school going children between 15 and 22 years of age, living outside Anand, too filled the Google form. So number of subjects of 1st age group, i. e. 15-25 years, responding to the scale is more compare to other two age groups.

2. GENDER



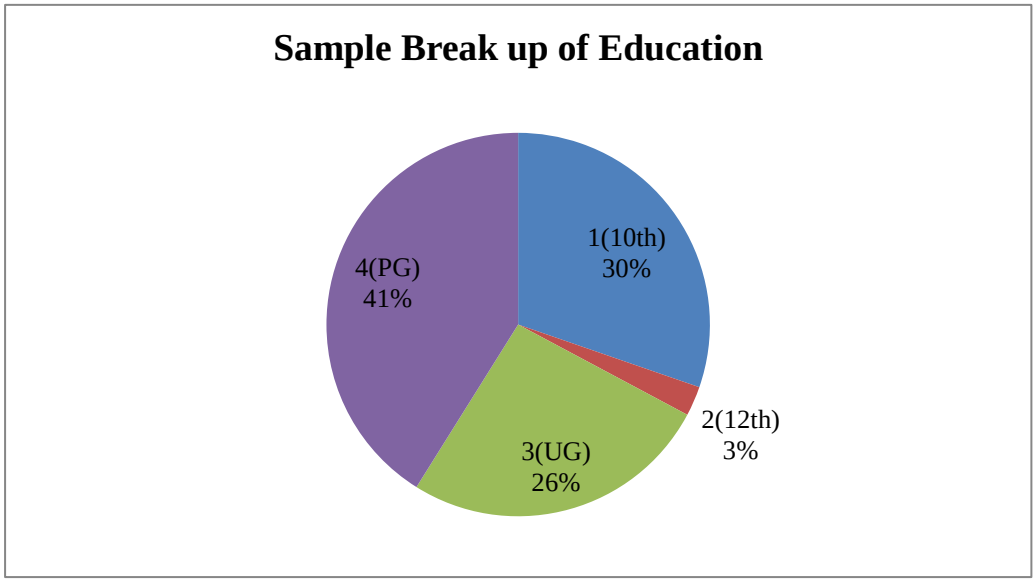
The pie chart of GENDER shows that more females have responded to the scale than males. Out of 2124 subjects, 919 males and 1205 females have responded to the scale.

3. OCCUPATION



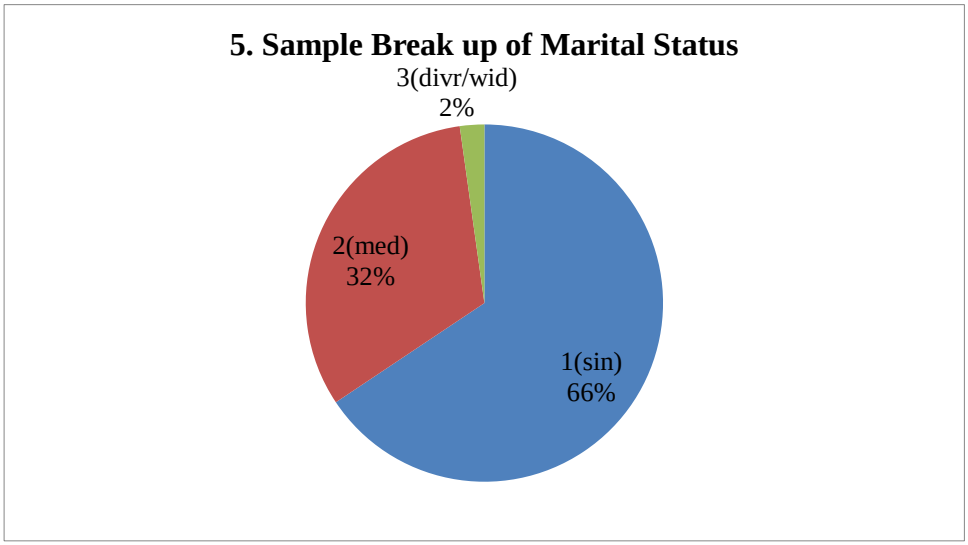
Occupation is divided in three groups, student, job and business. 1175 students, either in school or in college, have responded to the scale. 816 subjects are doing a job and 104 are in business.

4. EDUCATION



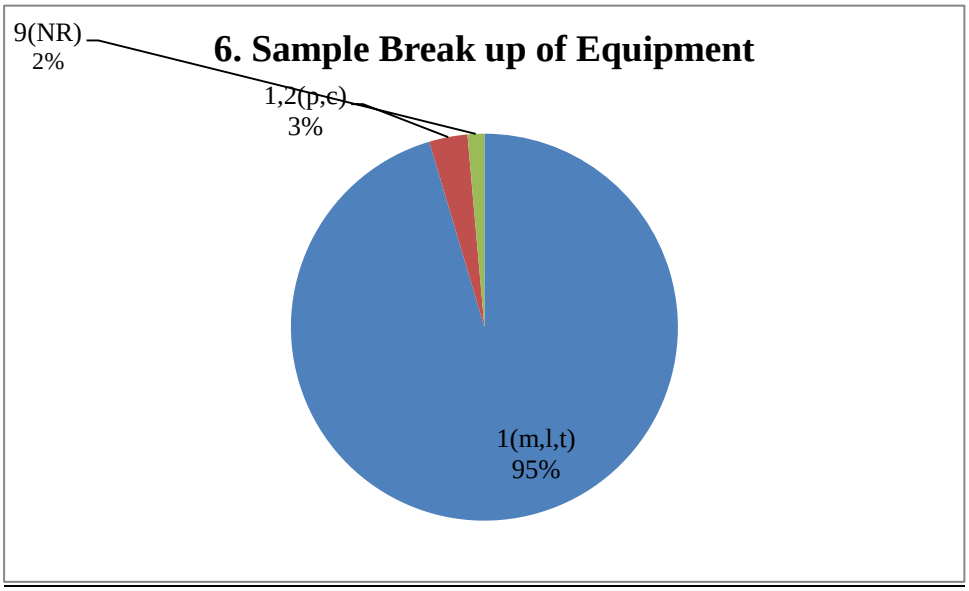
In education, out of 2124 subjects, 643 are 10^{th} pass and 54 are 12^{th}pass. 554 have done graduation and 873 are post-graduates. Graduates and post-graduates collectively use internet more than school-going children.

5. MARITAL STATUS



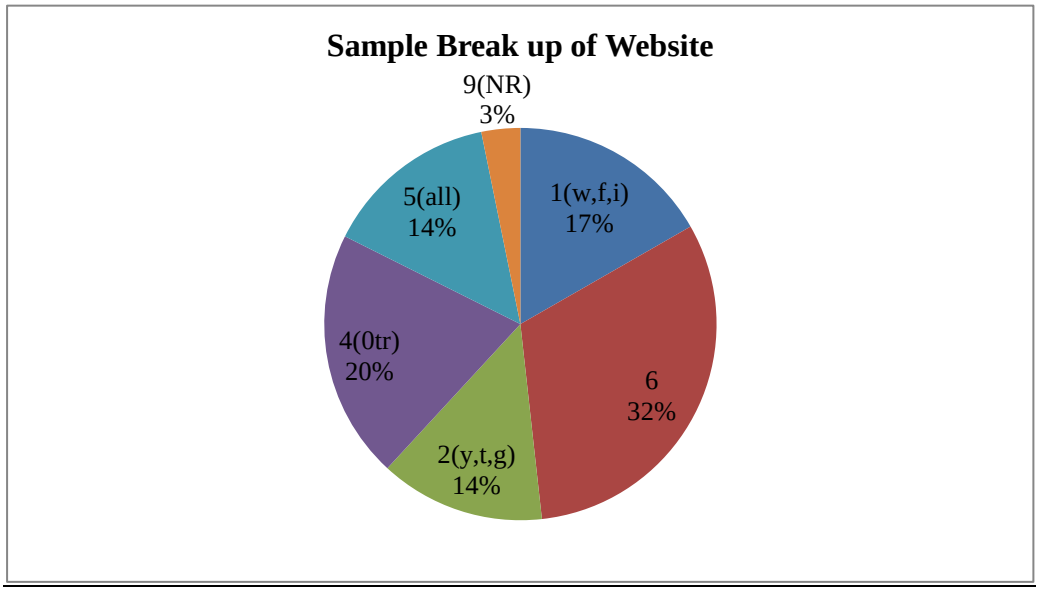
Marital status has four groups, single, married, divorced and widow. Out of 2124 subjects, 1386 are single, 679 are married, 47 are divorced and 12 are widowed. If age and marital status are compared, it seems that younger individuals have responded more, say 15-30 years of age, than individuals above age of 30. It can also be said that individuals up to the age of 30 are using internet more and may be that is why this questionnaire interests them more compared to individuals above the age of 30.

6. EQUIPMENT



For this research, few equipment were selected which individuals are using more to use internet. These equipment are, mobile, laptop, tablet and computer. Mobile, laptop and tablet are placed in one group as individuals can use them anywhere and most individuals own one, two or all of them. Individuals can't use computer anywhere as it is not mobile. They can use it wherever it is available like at home or in office so it is separated. Out of 2124 subjects 2027 are using mobile, laptop and/or tablet through which they access internet. Only 68 participants use all four equipment. 29 participants did not answer for this detail.

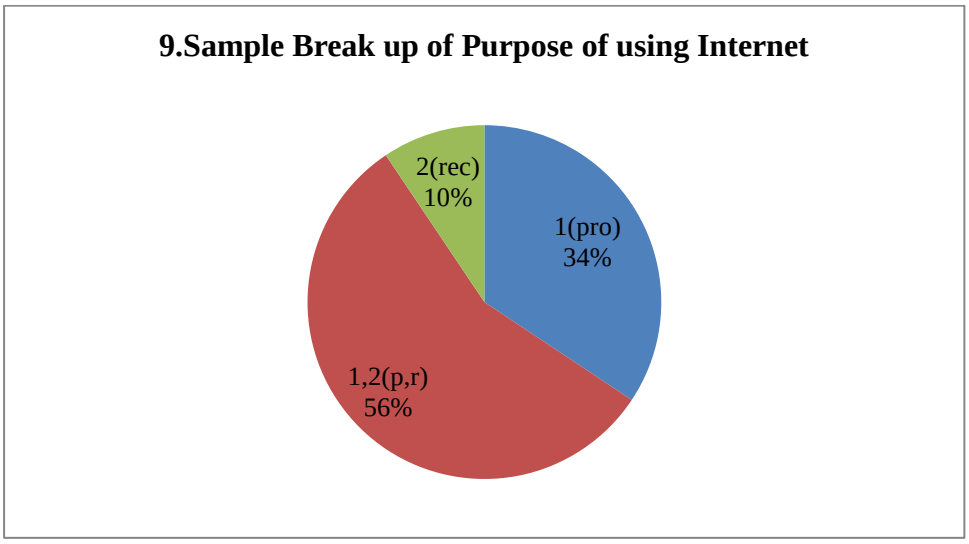
7. WEBSITES



Few websites were selected which individuals are using more, as it is observed in general. These websites are WhatsApp, Facebook, Instagram, YouTube, Twitter, Google, Flipkart, Amazon and Snapdeal. These websites were divided in three groups. Whatsapp, Facebook and Instagram were placed in one group as they are mostly used for communication. YouTube, Twitter and Google are placed in second group called 'information' as they are used for getting information on various subjects. Last group is for shopping and many individuals are using Flipkart, Amazon and Snapdeal to shop so these three were put in third group called 'shopping'.

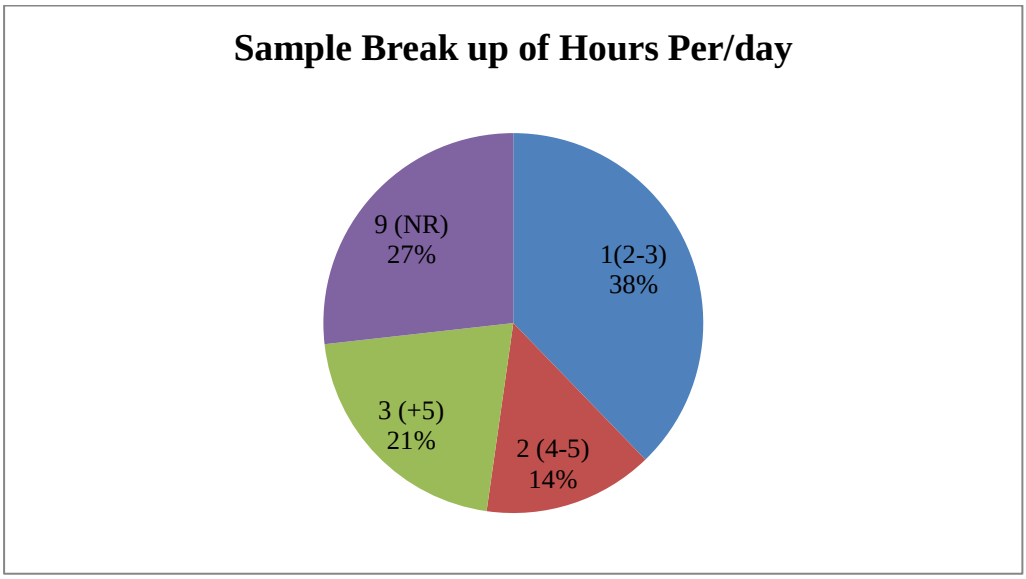
Above pie chart shows 354 subjects are using internet to get access to whatsapp, Facebook and/or Instagram. 288 participants are using internet to access YouTube, twitter and/or Google. 436 participants have opted for 'others' option which means they do not use above websites but use other websites which they have not mentioned here. 306 participants use all these websites for various purposes. 670 participants have selected all the six websites mentioned in first and second groups and 68 participants have not answered this item in the scale. None of the participant has opted for third group which has shopping websites which means individuals do use shopping sites but also use other websites too.

8. PURPOSE OF USING INTERNET



Individuals are using internet for various purposes like work, education, information, news, entertainment, communication and shopping. These purposes were again divided in two groups. First group is of 'productive usage' where individuals are using internet for productive reasons like work, education, information and/or news. Second group is of 'recreation' where individuals are using internet for recreational purposes like entertainment, communication and/or shopping. Out of 2124 participants 706 are using internet for productive reasons. 193 participants are using internet for recreational activities only and 1155 participants are accessing internet for recreational activities as well as productive reasons. 70 participants have not responded to this item in the questionnaire. The pie chart shows that maximum participants are using internet for both, productive and recreational activities.

9 HOURS PER DAY



Above pie chart shows number of hours subjects are spending in front of internet per day. 802 subjects use internet for 2-3 hours daily while 307 are using it for 4-5 hours in a day. 433 subjects use internet for more than 5 hours and 569 subjects either use internet for less than 2 hours or they choose not to answer for this detail.

802 subjects are using internet for 2-3 hours daily, so 14-21 hours weekly. 569 subjects are either using internet for less than 2 hours or they do not want to disclose their time spent on the internet. It could be possible that among those 569 subjects, many are overusing internet by spending more than 5-6 hours daily or 35-42 hours weekly and they might be experiencing the symptoms or effects of overusing the internet but they choose not to disclose that.

7.6 Tools for main study

Three scales were used to collect data.

1. Scale for internet overuse (Developed by the researcher)

2. University of California, Los Angeles (UCLA) Loneliness scale by Russell DW(1996)

3. Rosenberg Self-Esteem Scale

In order to establish criterion validity, we decided to take two more tests with the scale for internet overuse. UCLA Loneliness scale and Rosenberg's Self- esteem scale were included because there is no standardized test available for internet overuse or internet addictive disorder. The scale prepared by this researcher needs to be validated. Many researches are available on co-morbid nature of internet overuse and among them; loneliness is more studied and researched. Research says that individuals, who are suffering with loneliness, tend to use internet more or we can say they overuse the internet. We also wanted to study the correlation between self- esteem of the participants and its correlation with internet overuse. Generally it is observed that individuals who have low self-esteem, they overuse internet because they feel more confident online rather than offline. Lonely people are more likely than the non-lonely to be socially inhibited and anxious, self-conscious, and sensitive to rejection. They have poor social skills, have difficulty making friends, initiating social activity, and participating in groups, are less likely to be intimate and self-disclose, and have low self- esteem. By including all three scales and administering them on the participants, we could establish the validity of the scale for internet overuse. Face validity of the scale for internet overuse was established by giving the scale to the experts.

Scale for internet overuse has 51 items and it is a 5- point scale. UCLA Loneliness scale is a 4-point scale with 20 items and Rosenberg's self-esteem scale is a 4-point scale with 10 items. Demographic details were same as the pilot study.

7.7 Procedure for main study

Schools and colleges were approached by the researcher, and the ones which willingly participated were retained for the study. After getting permission from principals of the schools and Head of the colleges, the students were subjected for the study. The students were selected from various disciplines. The purpose of the research was explained to the participants. Participants were clarified that the research assess the duration of the internet use , the purposes of internet use and the change of the purposes according to the growing age(specially for participants above the age of 30). In schools and colleges, the scales were administered on the students, with a time limit of half an hour. However, if somebody wanted more time to finish all the questions, they were allowed to do so. The scales were given to the professionals and collected after 1-2 days.

Google form was also prepared with the same scales and the link was sent to individuals within the age group of 15 and 50 years who are more comfortable with Google form rather than hard copy of the scale or are living at faraway places and to meet them in person was not possible for the researcher. Out of total 2124 participants, 864 participants responded for Google form and 1260 participants responded by filling the hard copies. It was decided to distribute the scales to as many individuals as possible which could help the researcher to understand the nature of internet overuse in a better way. Few participants of 50+ age responded to the scale in Google form but their responses were not included in the research. Feedback from the participants suggested that many of them felt the research in this area is required as they observe people around them experiencing the consequences of internet overuse. The response was overwhelming.

7.8 Factor Analysis

Initially the factor analysis delivered 13 factors of which Inter-item consistency (Chronbach Alpha) was carried out. Scree plot produced 65 factors out of which 14 factors are meaningful as they have Eigen value of greater than one. Remaining 51 factors are inconsequential as they have Eigen value less than one so they are rejected. Scree plot also shows the slope of the curve is leveling off after 13^{th} factor which suggests that 13 factors are generated by the factor analysis out of which 4 factors were eliminated because 1 factor had only one item and other three factors showed low factor loading which was .55, .58 and .46. Eigen value of factor number 14 was greater than one still it was rejected as none of the item falling in this factor has factor loading more than .27. Remaining 9 factors have 3-14 items in each factor and total number of items is 43.

The kind of items each factor comprises, names are given to each factor. Experts' opinion was sought for the suitability of the names. Experts had approved the names given to each factor except factor number four. The name was given to this factor was "Occupational & Relationship impairment" but experts suggested that the items in this factor are more of consequences rather than impairment so now this factor is called “Occupational and Relationship Consequences”.

Table 5: Factors with Eigen values, factor loading and Chronbach alpha

Factor Name	Items	Factor Loading	Chronbach α	Eigen value
1. Withdrawal			.96	20.30
	1. If I can't go online, I feel irritable.	.884		
	2. If I can't go online, I feel anxious.	.882		
	3. If I can't go online, I feel restless.	.855		
	4. If I can't go online, I feel jittery.	.815		
	5. If I can't go online, I feel depressed.	.807		
	6. If I can't go online, I feel uncomfortable.	.799		
	7. If I can't go online, I feel angry.	.770		
	8. If I can't go online, I feel memory difficulties.	.693		
	9. If I can't go online, I feel moody.	.660		
	10. If I can't go online, I feel I cannot think straight.	.659		
	11. I use the internet when, I fell neglected.	.655		
	12. I use the internet when, I am angry.	.627		

	13. I use the internet when, I had bad interpersonal experience.	.611		
2. Functional impairment			.88	4.53
	1. When I tried to cut down the excessive amount time I spend online, my fingers have done typing movements voluntarily or involuntarily.	.723		
	2. I am used to sacrificing sleep time so I can spend more time online.	.712		
	3. I have reduced my interaction with family and friends because of the time dedicated to being online.	.648		
	4. I eat food half-heartedly as internet occupies most of my attention.	.571		
	5. I have more fun with the people online than others.	.523		
	6. I find myself constantly thinking about the internet even when offline.	.461		
	7. I neglected regular/ day-to-day household responsibilities to spend more time online.	.438		
	8. Last week, I got less than four hours sleep at night because I was using the net.	.431		
3. Social Impairment			.65	2.56
	1. I say or do things on the internet that I could never do offline.	.574		
	2. Online relationship can be more fulfilling than offline.	.542		
	3. When I am offline, I am preoccupied with thoughts about things on the internet.	.507		

	4. I do not neglect my household chores/office work/academic work because of internet.	.435		
4. Occupational & Relationship Consequences			.84	2.08
	1. Due to my involvement with the internet, I have jeopardized or lost job.	.802		
	2. Due to my involvement with the internet, I have jeopardized or lost educational opportunity.	.790		
	3. Due to my involvement with the internet, I have jeopardized or lost career opportunity.	.680		
	4. Due to my involvement with the internet, I have jeopardized or lost a significant relationship.	.552		
5. Compulsive Behaviour			.75	1.83
	1. My productivity at work has decreased since I have started enjoying being online.	.670		
	2. My use of the internet sometimes seems beyond my control.	.643		
	3. I am more myself online than in real life.	.458		
6.Obsession with Internet			.59	1.70
	1. I spend less time doing activities which I previously found pleasurable like playing outdoor games.	.607		
	2. I am unable to reduce the amount of time I spend online even though I want to.	.535		
	3. I keep checking my notifications even before some urgent task I have to take up.	.511		

7.Internet as a source of recreation & satisfaction	1. If it weren't for my computer, I wouldn't have any fun at all.	.711	.58	1.33
	2. Internet makes me calm.	.480		
	3. I have stopped going for movies in multiplexes, live shows like concerts and plays, or watching sports matches with friends because I feel I can watch them online.	.477		
8.Enhanced socialization through internet	1. I do not worry about relationship commitment when socializing online.	.673	.60	1.21
	2. I am friendlier online than in real life.	.670		
	3. I have lied to family, friends or a significant other like a therapist or an employer to conceal (hide) the amount of time I spend online or the type of content I access.	.408		
9. Perceived control of internet overuse	1. I do not like to sacrifice my sleep for the internet/online activities.	.807	.59	1.12
	2. I do not like to get late for my work/school/college.	.646		

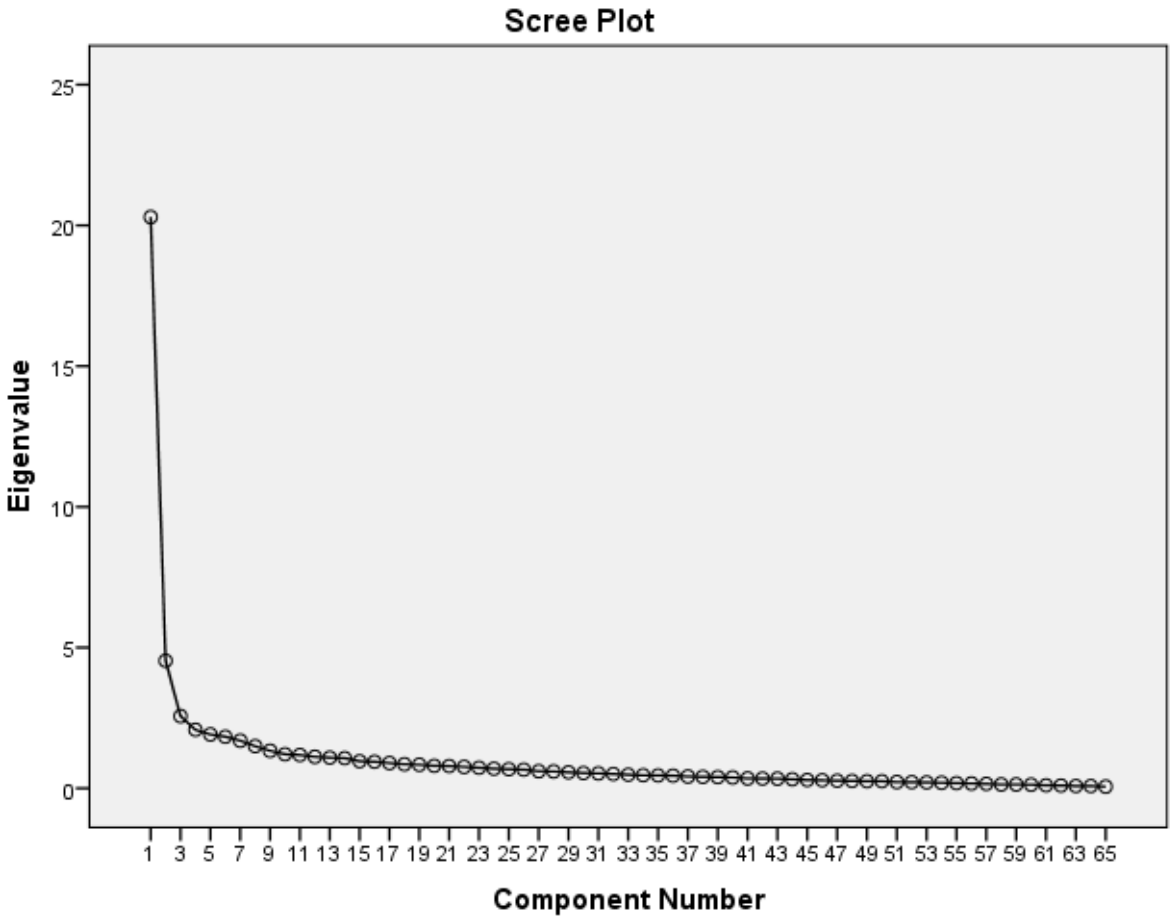


Figure 1: Scree plot with Eigenvalues and factors on internet overuse

7.8.1 Reliability and Validity

Reliability: Chronbach α was calculated for establishing the reliability of the developed scale for internet overuse, as Chronbach α is the measure of internal consistency of the items.

Validity: To establish face validity, experts' opinions were sought and collected. On the basis of experts' opinion, many items were modified or eliminated from the scale. Experts' opinion was sought for three times. Initially when items were collected to develop the scale for internet overuse, the list of items was given to the experts to validate them on four criteria: Readability, Appropriateness,

Communicability and Understanding. After pilot study and main study, the retained items were given to the experts for validation of names given to each factor.

Criterion validity: To establish criterion validity, UCLA Loneliness scale was used. Extensive research has been done to study the relation between internet overuse and loneliness. Lonely individuals tend to use the internet to vent out their feelings and to share their stories with others and it is a factor in problematic Internet use (PIU) (Widyanto, Griffiths, 2006) (Kubey, Lavin, Barrows, 2001).Davis introduced a cognitive-behavioral model of PIU, contending that psychosocial problems (e.g., loneliness, depression) predispose some internet users to exhibit maladaptive cognitions and behaviors that result in negative outcomes (Davis, 2001; Davis et al., 2002; Caplan, 2002, 2003). He noted that the use of the term "addiction" to describe unhealthy internet use is incorrect.

Psychosocial consequences of internet overuse include loneliness (Kraut et al, 1998), frustration (Clark et al, 2004) and depression (Young & Rogers, 1998). Heavy internet users tend to have less interaction with family members, have smaller social circles, and higher rates of depression and loneliness than light users (ChiungJungHoung, 2010).The contrasting view to the internet causing loneliness is that lonely people have a greater desire to use the internet and can even benefit from doing so. Researchers also want to know whether lonely people assess the internet to improve their psychological well-being (Whitty, McLaughlin, 2007). Internet gave lonely people a vehicle for both communication and recreation, often providing a safe and fun social life that was denied in real life. Many turned to the internet to escape from the pressures and discomfort of their lives. Davis (2002) also found that increased internet usage was associated with decreased levels of loneliness and depression and increased levels of social support and self-esteem. (Shaw, Gant, 2002) (Oldfield, Howitt, 2004). These and similar researches inspired to use UCLA Loneliness scale for this study to construct a tool to evaluate the nature of internet overuse.

7.8.2 Operational Definition of Factors

- Withdrawal: feeling of irritation, anxiety, restlessness, depression, and mood swings when attempting to cut down or stop using internet.
- Functional impairment: Sacrifices sleep to be on internet, reduces interaction with family and friends, eat half-heartedly and constantly thinking about internet when offline.
- Social Impairment: Say or do things online which could not be done offline and enjoy online relations more than offline but do not neglect household chores/office work/academic work because of internet.

- Occupational & Relationship impairment: The person has jeopardized/lost job/educational opportunity/career opportunity/significant relationship.
- Obsession with internet: when a person spends less time for other pleasurable activities because of internet, can't reduce amount of time on internet and can't avoid checking notifications.
- Internet as a source of recreation & satisfaction: When a person feels there is no fun without computer and enjoy all activities like movies online rather than going out with friends.
- Enhanced socialization through internet: When a person is friendlier online than in real life and lie to family and friends as relationship commitment is not so important.
- Perceived control of internet overuse: When a person doesn't sacrifice sleep because of internet and reach on time for job/school/college.

All the above factors will help to measure internet overuse and its effects on different facets of an individual's life like social, psychological and occupational. Internet overuse is affecting people negatively but it is still not certain to call it an addictive disorder or compulsion. It is discussed in detail in previous chapters. In light of this, it is decided to call this scale as "Internet Overuse Scale" rather than calling it "Internet Addiction Scale".

Chapter 8

Result

The data was collected from 2124 participants and it was analyzed. The factors of internet overuse are positively correlated with loneliness and negatively correlated with self-esteem which proves the validity of internet overuse scale developed for this research.

The following table shows the correlation between Internet overuse scale, Loneliness scale and self-esteem scale.

Table 6: Correlation of internet overuse scale with loneliness scale, N: 2124

Table 6: Correlation of internet overuse scale with loneliness scale, N: 2124

	W	FI	SI	O& RI	CB	OwI	I- sof R&S	ES thr I	PCofIou	SelfEsteem	Loneliness
W	1										
FI	.568**	1									
SI	.491**	.582**	1								
O& RI	.540**	.436**	.435**	1							
CB	.527**	.632**	.519**	.401**	1						
OwI	.428**	.520**	.468**	.363**	.490**	1					
I- sof R&S	.504**	.513**	.447**	.360**	.461**	.380**	1				
ES thr I	.499**	.366**	.265**	.338**	.393**	.287**	.384**	1			
PCofIou	.325**	.329**	.256**	.298**	.235**	.192**	.160**	.274**	1		
SET	-.187**	-.251**	-.194**	-.177**	-.155**	-.239**	-.182**	-.085**	-.137**	1	
LT	.280**	.318**	.260**	.241**	.207**	.279**	.185**	.137**	.143**	-.653**	1

**. Correlation is significant at the 0.01 level (1-tailed).
W – Withdrawal, F I – Functional Impairment, SI – Social Impairment, O & RI–Occupational & Relationship Impairment, CB – Compulsive Behaviour, OwI – Obsession with Internet, I- sof R&S – Internet as a Source of Recreation & Satisfaction, ES thr I – Enhanced socialization through Internet, PCofIou – Perceived Control of Internet overuse, SE – Self-esteem, L – Loneliness

The above table shows significant positive correlation between all the dimensions of internet overuse, loneliness and self-esteem. Research suggests that loneliness is a factor in problematic internet use. Individuals who expressed feelings of loneliness, isolation and/or boredom, can facilitate heavy internet use as these individuals use virtual relationships to seek out feelings of comfort and community. However, the direction of the relationship between loneliness and internet use is hard to determine (Morahan-Martin, Schumacher 2003). After extensively reviewing the related literature, Morahan-Martin (1999) concluded that research has not determined whether loneliness is symptomatic of excessive internet use, or if heavy internet use is symptomatic of loneliness. However, she suggests that loneliness is caused by excessive internet use. She also contends that once the internet becomes a substitute for real-life social interaction, users may be caught in a vicious cycle and turning to the internet to escape the discomfort of everyday life can sometimes lead to internet addiction. (Whitty, McLaughlin, 2007). There is negative correlation between internet overuse and self-esteem. It could be said that individuals who have power self-esteem tend to use internet more. The findings from research support the correlation between loneliness, internet overuse and self-esteem.

Table 7: Mean difference in the scores of internet overuse factors between Male and Female groups

Variables	Male (n = 919)		Female (n =1204)		*t*	*df*	*p*
	M	*SD*	*M*	*SD*			
W	29.62	16.97	27.86	15.82	2.45	2121	.014**
FI	17.47	8.20	15.53	7.01	5.85	2121	.000
SI	9.50	3.55	8.65	3.35	5.60	2121	.000
O & RI	7.94	5.30	6.70	4.60	5.74	2121	.000
CB	6.62	3.39	5.87	2.95	5.49	2121	.000
OwI	7.06	2.90	6.75	2.89	2.44	2121	.015**
I- sof R&S	7.18	2.74	6.30	2.65	7.42	2121	.000
ES thr I	6.49	3.09	5.86	2.82	4.92	2121	.000
PCofIou	3.95	2.30	3.75	2.19	2.02	2121	.044**

**p<.05

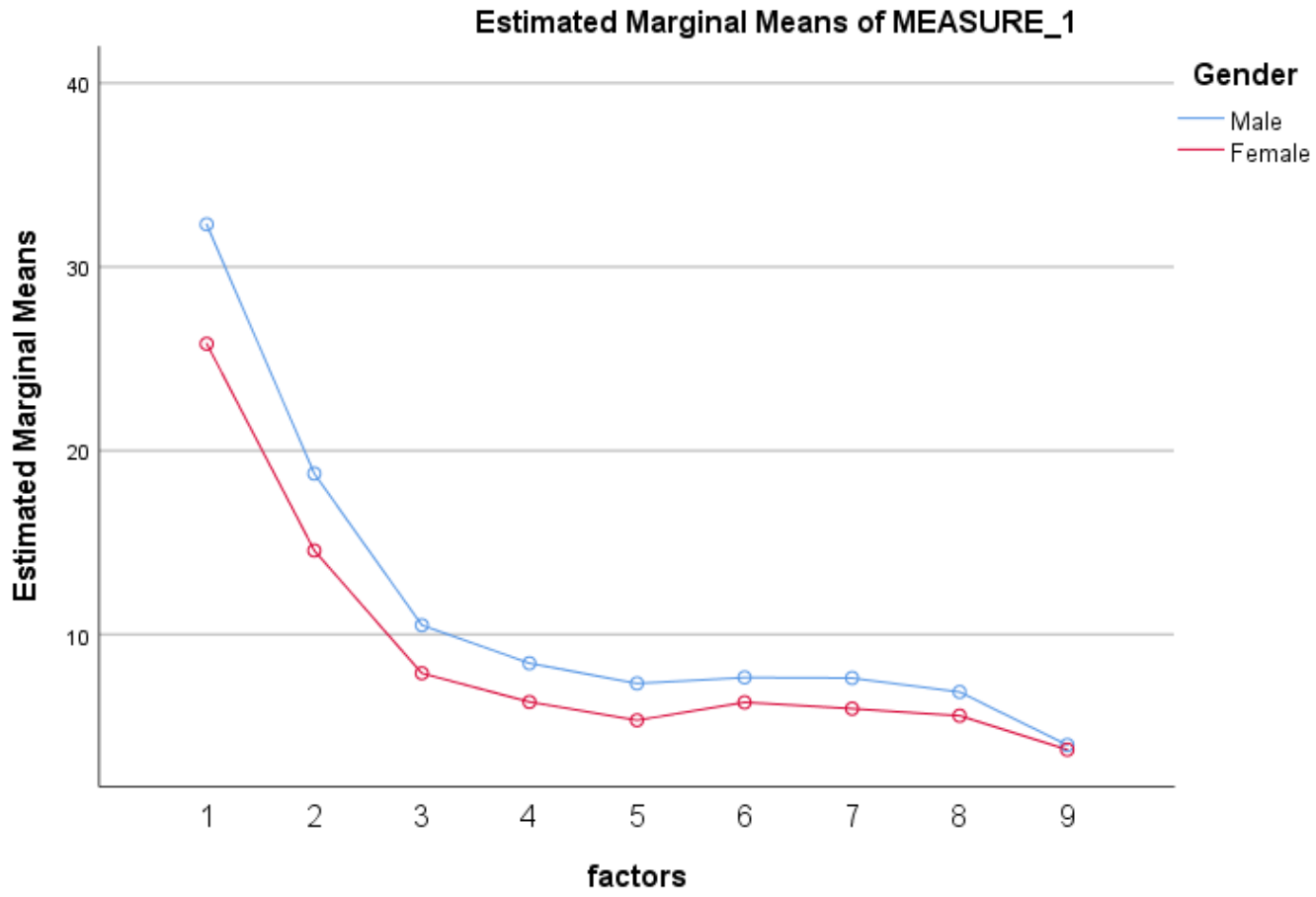


Figure 2: Profile Plot for Male and Female groups

Table 7 shows males and females are significantly different on three factors, withdrawal, obsession with internet and perceived consequences of internet overuse. Mean value of male group for withdrawal is higher than the female group which means males experience withdrawal more than females. Same is for other two factors, males are more obsessed with internet and they are experiencing consequences of internet overuse more than females.

Table 8: Mean difference in the scores of internet overuse factors between different groups of age

Variables	Group1(15-25) N = 1270		Group 2 (26-35) N = 401		Group3 (36-50) N = 453		F Value
	Mean	SD	Mean	SD	Mean	SD	
W	31.81[a]	16.77	25.10[b]	10.01	22.80[b]	17.44	65.96**
FI	18.17[a]	7.57	15.53[b]	8.64	12.07[c]	4.08	123.25**
SI	9.90[a]	3.44	7.65[b]	3.06	7.75[b]	3.06	113.95**
O & RI	7.87[a]	4.63	7.08[b]	6.23	5.60[c]	4.09	36.59**
CB	7.00[a]	2.89	5.81[b]	4.21	4.28[c]	1.55	143.29**
OwI	7.49[a]	2.85	6.20[b]	2.68	5.81[b]	2.81	74.11**
I- sof R&S	7.40[a]	2.81	6.24[b]	2.23	5.04[c]	1.99	150.15**
ES thr I	6.68[a]	3.29	5.43[b]	2.05	5.23[b]	2.15	57.53**
PCofIou	3.99[a]	2.27	4.02[a]	2.43	3.27[b]	1.89	19.02**

**p<.05

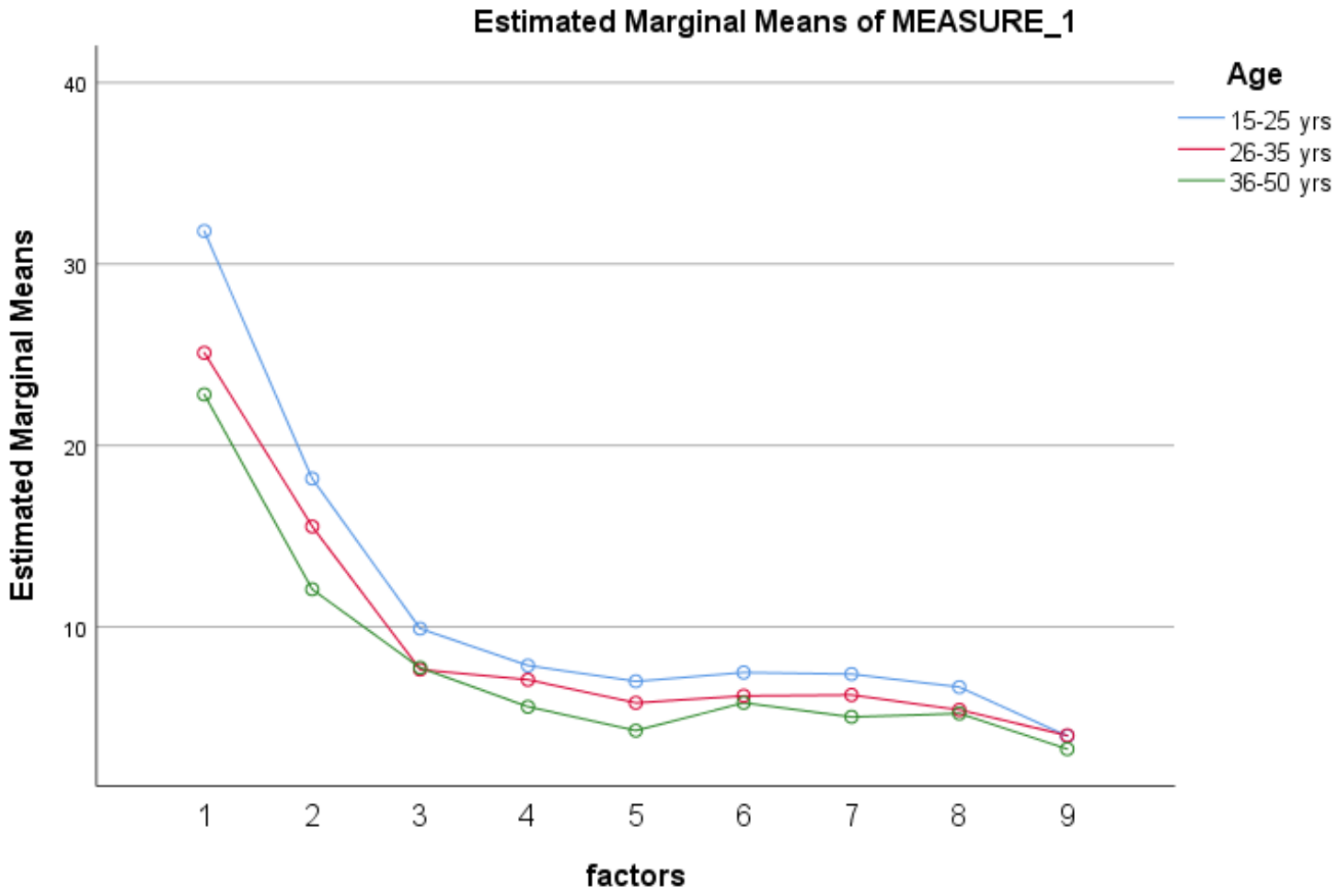


Figure 3: Profile Plot for different age groups

Table 8 shows the significant difference in the factors of internet overuse among three age groups. The youngest group differs significantly from rest of the groups on the factor withdrawal. The mean value of the youngest group is higher than other two groups. Participants from 15 to 25 years are experiencing withdrawal the most compare to other two groups. For the factor functional impairment, all three groups differ significantly from each other. The mean value of first group is higher than group 2 and 3. This means the youngest participants are suffering with functional impairment the most. The mean values of group 1(15-25 yrs) for the factors social impairment, obsession with internet and enhanced socialization through internet, are again higher than the mean values of group 2 and 3. Again the youngest group is experiencing these three factors of internet overuse more than middle group and the oldest group. All three groups are significantly different on occupational and relationship impairment, compulsive behaviour and internet as a source of recreation and entertainment. Mean value of group 1 higher than group 2 and 3 for all three factors which means with social and functional impairment, group 1 is also experiencing occupational and relationship impairment and compulsive behaviour more than group 2 and 3. Group 1 is also using internet for recreation and socialization more than other groups. The mean value of group 2 for the factor perceived consequences of internet overuse is higher than group 1 and 3. Group 3 is significantly different from group 1 and 2. The highest mean value is of group 2 which suggests that group 2 is facing the consequences of internet overuse more than group 1 and 3.

Table 9: Mean difference in the scores of internet overuse factors between different groups of occupation

Variables	Group1 (student) N = 1175		Group2 (job) N =816		Group3 (business) N = 104		F
	Mean	SD	Mean	SD	Mean	SD	
W	31.36^{a}	17.08	25.69^{b}	15.18	20.63^{c}	7.95	23.00^{**}
FI	17.70^{a}	7.40	14.87^{b}	7.66	12.59^{c}	4.93	27.98^{**}
SI	9.66^{a}	3.37	8.35^{b}	3.50	6.95^{c}	2.38	32.01^{**}
O & RI	7.71^{a}	4.26	6.74^{b}	5.88	5.48^{b}	2.98	9.89^{**}
CB	6.96^{a}	2.89	5.33^{b}	3.39	4.41^{c}	1.99	44.82^{**}
OwI	7.52^{a}	2.85	5.98^{b}	2.70	6.54^{b}	3.11	37.74^{**}
I- sof R&S	7.33^{a}	2.86	6.00^{b}	2.27	4.76^{c}	2.13	49.53^{**}
ES thr I	6.59^{a}	3.32	5.53^{b}	2.18	5.49^{b}	2.99	20.00^{**}
PCofIou	3.91^{a}	2.31	3.72^{a}	2.10	3.69^{a}	2.31	5.80^{**}

**p<.05

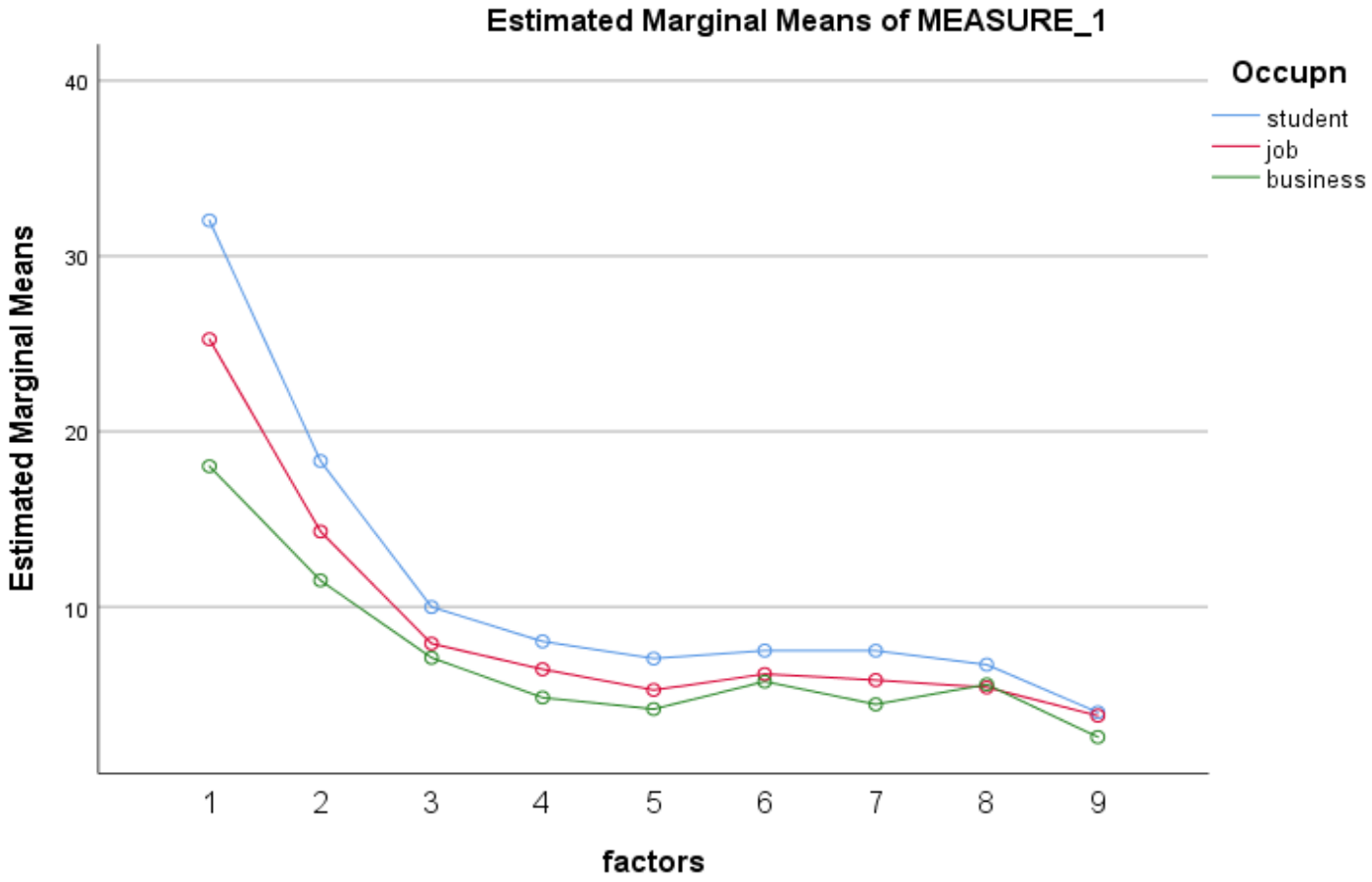


Figure 4: Profile Plot for different groups of occupation

Table 9 shows mean difference among three groups of occupation for different factors of internet overuse. All three groups significantly different on withdrawal, functional impairment, social impairment, compulsive behaviour and internet as a source of recreation and satisfaction. The mean value of group 1 (student) for withdrawal, for functional impairment, for social impairment, for compulsive behaviour and for internet as a source of recreation and satisfaction is higher than group 2 (job) and group 3 (business). It implies that students are more adversely affected by internet overuse than working and business class individuals. Group 1 is significantly different from group 2 and 3 on occupational and relationship impairment, obsession with internet and enhanced socialization through internet. The mean value of group 1 on these three factors is higher than the other two groups which indicates group 1 is experiencing these factors of internet overuse more than group 2 and group 3.

Table 10: Mean difference in the scores of internet overuse factors between different groups of education

Variables	Group1 (10th) N = 643		Group2 (12th) N = 54		Group3 (UG) N = 554		Group4 (PG) N = 873		F
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
W	28.57^{a}	16.77	28.78^{abc}	8.31	32.73^{b}	17.43	26.05^{c}	15.15	19.35^{**}
FI	15.18^{ab}	5.83	17.22^{a}	5.68	20.65^{c}	8.76	14.49^{b}	7.00	92.45^{**}
SI	9.30^{a}	3.35	9.44^{ab}	2.29	10.23^{b}	3.57	8.01^{c}	3.25	52.07^{**}
O & RI	6.92^{a}	3.87	7.06^{ab}	3.44	9.72^{c}	6.71	5.90^{b}	3.68	75.87^{**}
CB	6.39^{a}	2.71	7.44^{ab}	2.55	7.66^{b}	4.13	5.04^{c}	2.25	91.76^{**}
OwI	7.00^{a}	2.99	8.00^{ab}	2.40	7.72^{b}	2.86	6.21^{c}	2.72	35.62^{**}
I- sof R&S	7.25^{ab}	2.00	6.39^{ac}	1.82	7.55^{b}	2.69	5.72^{c}	2.25	70.71^{**}
ES thr I	5.91^{ac}	3.68	6.89^{ab}	2.28	6.92^{b}	2.81	5.75^{c}	2.31	21.12^{**}
PCofIou	3.34^{b}	2.19	4.78^{a}	2.03	4.42^{a}	2.38	3.78^{c}	2.09	27.68^{**}

**p<.05

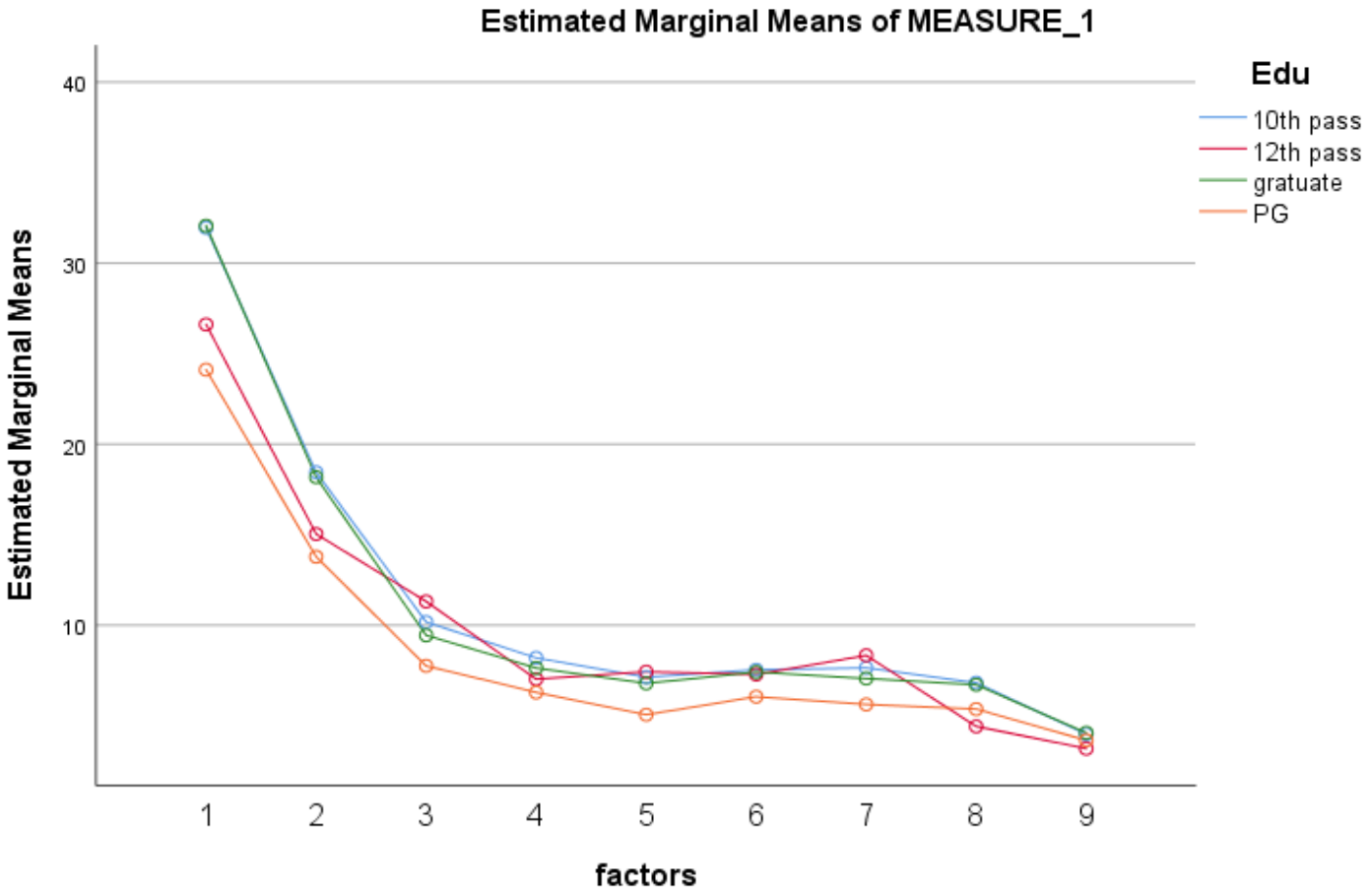


Figure 5: Profile Plot for different groups of education

Four groups of education, 10th pass, 12th pass, graduate and post-graduate, differ significantly on all factors of internet overuse. Group 3, graduate, has higher mean values on all factors of internet overuse than the other three groups. The mean values of group 4, post-graduate is the lowest among all four groups which shows that post-graduate participants are not much affected by the effects of internet overuse. Graduates are experiencing the effects of internet overuse the most.

Table 11: Mean difference in the scores of internet overuse factors between different groups of marital status

Variables	Group1 (single) N = 1386		Group2 (married) N = 679		Group3 (divorced/widow) N = 59		F
	Mean	SD	Mean	SD	Mean	SD	
W	31.02^{a}	16.37	23.96^{b}	15.49	26.14^{ab}	13.44	44.94^{**}
FI	17.93^{a}	7.89	13.47^{b}	6.09	13.29^{b}	5.83	89.91^{**}
SI	9.72^{a}	3.45	7.69^{b}	3.07	7.81^{b}	3.18	88.70^{**}
O & RI	7.68^{a}	4.55	6.54^{b}	5.70	4.66^{b}	2.43	20.60^{**}
CB	6.89^{c}	2.86	4.91^{a}	3.37	4.75^{ab}	2.62	104.34^{**}
OwI	7.32^{a}	2.86	6.07^{b}	2.75	6.02^{ab}	3.54	46.79^{**}
I- sof R&S	7.29^{a}	2.80	5.48^{bc}	2.17	5.95^{ab}	1.72	113.39^{**}
ES thr I	6.51^{ab}	3.20	5.30^{c}	2.11	6.80^{a}	3.09	41.87^{**}
PCofIou	3.94^{a}	2.25	3.66^{b}	2.28	3.47^{ab}	1.19	4.51^{**}

**p<.05

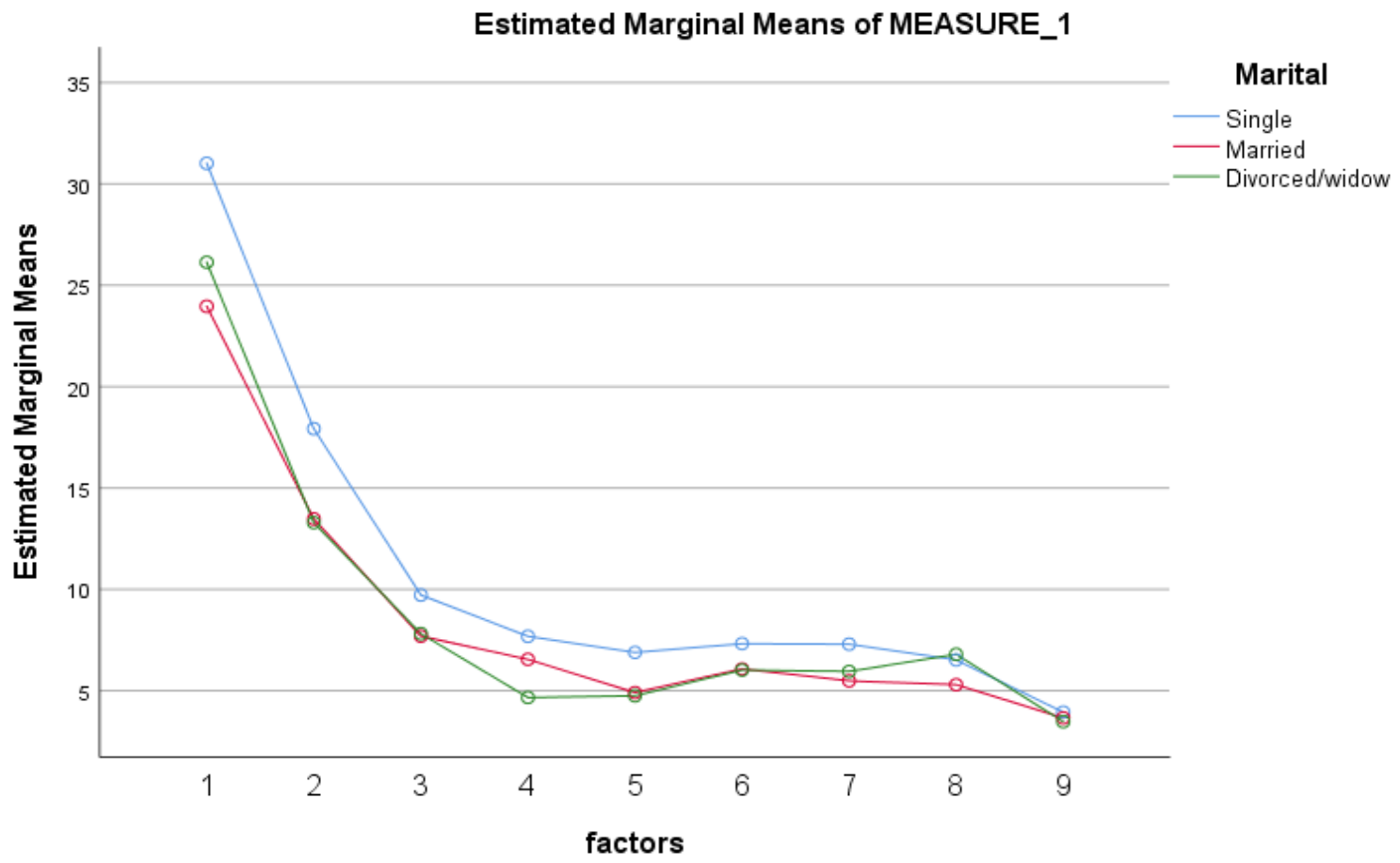


Figure 6: Profile Plot for different groups of marital status

Table 11 shows significant difference among three groups of different marital status: Single, married and divorced/widowed. Group 1 (single) is significantly different from group 2 (married) and 3(divorced/widowed). The mean value of group 1 for withdrawal higher than other 2 groups which implicates that participants who are single suffer with withdrawal more than married and divorced participants. Group 1 is significantly different from group 2 and 3 on functional impairment, social impairment occupational and relationship impairment and compulsive behaviour. The mean value of group 1 is higher in all these four factors. This indicates that internet overuse affects more too single individuals than married and divorced. For the factors obsession with internet, internet as a source of recreation and satisfaction and perceived consequences of internet, group 1 is significantly differ from group 2. The mean value for group1 for these factors is higher. For only one factor, enhanced socialization through internet, group 2 is significantly different from group 1 and 3 and the mean value of group 3 is higher that group 1 and 2. This implies that people who are divorced use internet more for socialization than people who are single and married.

Table 12: Mean difference in the scores of internet overuse factors between the use of different equipment

Variables	Group 1 (mo,lp,tb) N = 2027		Group 2 (mo,lp,tb,c) N = 68		Group 3 (NR) N = 29		F
	Mean	SD	Mean	SD	Mean	SD	
W	28.63	16.34	29.75	14.77	26.97	20.78	.303
FI	16.37	7.63	17.06	7.14	15.28	7.82	.56
SI	9.04	3.47	9.18	3.44	7.66	2.98	2.35
O & RI	7.22	4.95	8.15	5.30	6.21	3.99	1.75
CB	6.21	3.20	6.00	2.43	6.21	2.82	.42
OwI	6.88	2.90	7.37	2.91	5.76	2.60	.98
I- sof R&S	6.67[a]	2.72	7.38[b]	2.57	6.69[a]	2.84	5.68**
ES thr I	6.11	2.94	6.57	2.59	5.34	2.73	1.16
PCofIou	3.85	2.26	3.37	1.61	6.62	4.30	1.52

**p<.05

Mo- Mobile, lp- Laptop, tb- Tablet, c- Computer, NR- No Response

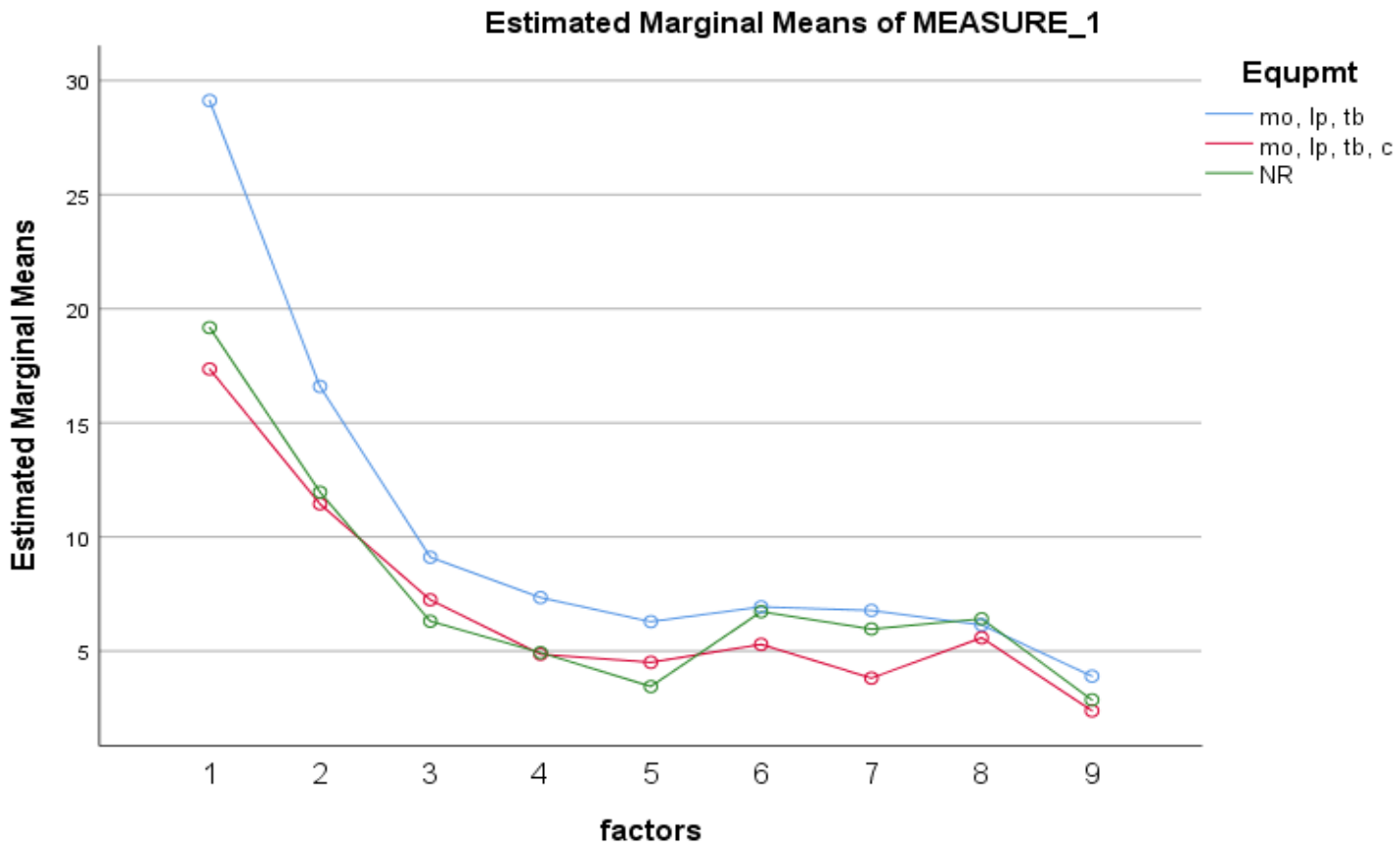


Figure 7: Profile Plot for use of different equipment

Table 12 shows that three groups; group 1 uses mobile, laptop and tablet to get access to the internet, group 2 uses mobile, laptop, tablet and computer to access internet and group 3 which has not responded for this variable. There is no significant difference among these three groups on the factors of internet overuse on the basis of equipment they used. There is a significant difference for only one factor, internet as a source of recreation and satisfaction. For this factor group 1 and 3 are significantly different from group 2. The mean value of group 2 is higher which means when all four equipment are available, internet is used more for recreation and satisfaction.

Table 13: Mean difference in the scores of internet overuse factors between different groups spending time on internet in terms of hours/day

	Group1 (2-3 hrs) N = 802		Group2 (4-5 hrs) N = 307		Group3 (+5 hrs) N = 445		Group4 (NR) N = 569		F
Variables	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
W	25.77^{a}	14.20	29.73^{b}	11.74	35.32^{c}	19.03	26.65^{a}	17.09	38.75^{**}
FI	15.27^{b}	6.58	18.34^{a}	6.82	19.51^{a}	9.86	14.42^{b}	6.23	54.00^{**}
SI	8.49^{b}	3.01	9.62^{a}	3.57	9.61^{a}	3.93	8.99^{c}	3.50	13.93^{**}
O & RI	6.78^{b}	4.91	7.27^{ab}	3.79	8.15^{a}	5.30	7.11^{b}	5.17	7.54^{**}
CB	5.86^{b}	2.85	6.61^{a}	2.54	6.87^{a}	2.94	5.91^{b}	3.89	13.24^{**}
OwI	7.01^{a}	2.92	7.31^{a}	2.43	7.34^{a}	2.84	6.12^{b}	3.02	20.02^{**}
I- sof R&S	6.39^{b}	2.97	6.88^{ac}	2.71	7.35^{a}	2.74	6.43^{bc}	2.21	14.40^{**}
ES thr I	5.82	2.33	6.67	2.62	7.42	3.87	5.23	2.51	57.81^{**}
PCofIou	3.78^{b}	2.21	3.87^{ab}	2.27	4.25^{a}	2.20	3.57^{b}	2.25	7.95^{**}

**p<.05

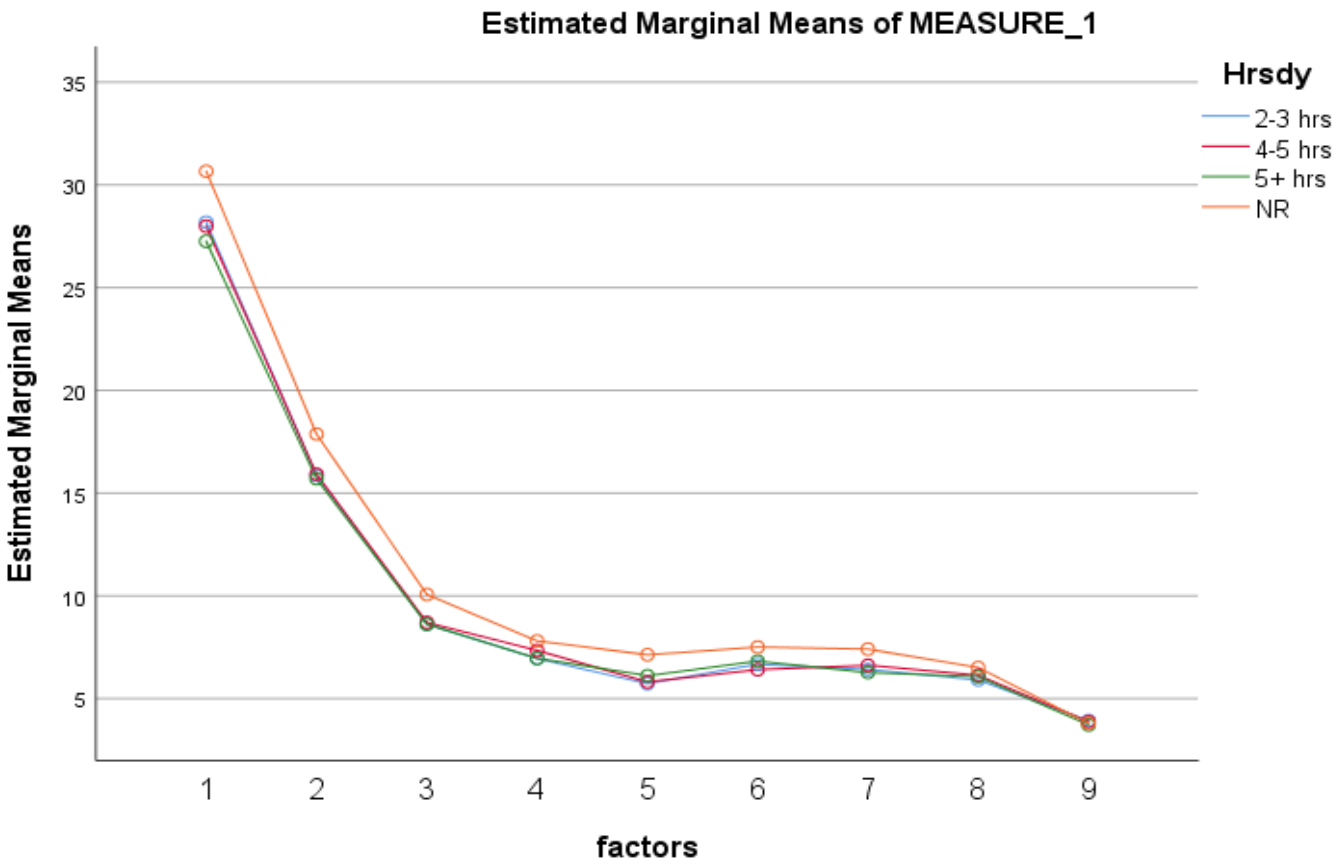


Figure 8: profile plot of different groups spending time on internet

Table 13 shows the mean difference in the scores of internet overuse factors between different groups spending time on internet in terms of hours. There are four groups, group 1 is of 2-3 hours, group 2 is spending 4-5 hours, group 3 is spending more than 5 hours on internet and group 4 comprises participants who have not responded for this variable. If we compare the mean value of group 1, 2 and 3, the mean value of group 3 is higher than group 2 and 3 on all variables except social impairment where group 2 and 3 are almost same. This shows that individuals who are using internet more than 5 hours are experiencing the effects of internet overuse more than individuals who are using internet for 2 to 4 hours. For the factor withdrawal, all three groups are significantly different from each other. For the factors functional impairment, social impairment, occupational and relationship impairment, compulsive behaviour, internet as a source of recreation and satisfaction, enhanced socialization through internet and perceived consequences of internet overuse, group 1 is significantly different from group 2 and 3. All three groups differ significantly from each other on two factors; obsession with internet and enhanced socialization through internet.

Table 14: Mean difference in the scores of internet overuse factors between different groups using internet for different purposes

Variables	Group 1 (Prof) N = 706		Group 2 (rec) N = 193		Group 3 (1,2) N = 1155		F
	Mean	SD	Mean	SD	Mean	SD	
W	29.92[a]	22.58	30.43[a]	13.36	27.24[b]	11.55	6.99**
FI	16.17[a]	8.05	16.33[a]	8.03	16.19[a]	7.12	11.39**
SI	9.57[a]	3.87	9.81[a]	3.42	8.48[b]	3.15	21.69**
O & RI	8.06[a]	6.70	8.90[a]	4.18	6.45[b]	3.48	24.21**
CB	6.35[a]	3.96	6.83[a]	3.27	5.89[b]	2.49	13.32**
OwI	6.52[a]	2.92	6.93[ab]	3.22	7.13[b]	2.80	6.88**
I- sof R&S	6.81[a]	2.61	7.12[a]	2.66	6.46[b]	2.82	7.69**
ES thr I	6.01[a]	3.59	6.97[b]	3.20	5.93[a]	2.32	21.45**
PCofIou	3.68[a]	2.18	4.64[b]	2.59	3.80[a]	2.22	9.69**

**p<.05

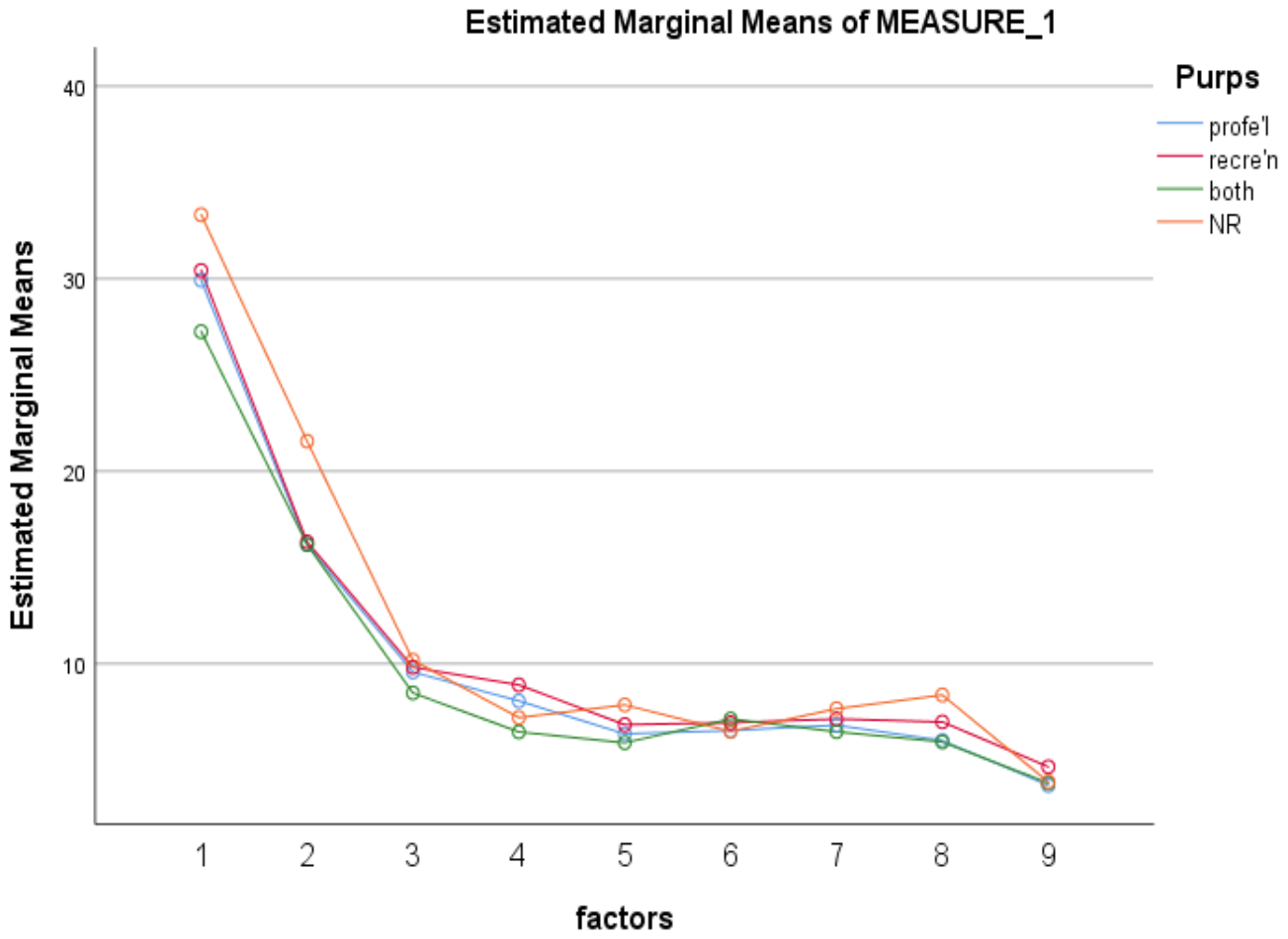


Figure 9: Profile Plot of groups using internet for different purposes

Table 14 shows the mean difference in the scores of internet overuse factors among three groups using internet for different purposes. For the factor withdrawal, group 1 which is using internet for professional purpose is significantly different from group 3 and group 2 which is using internet for recreation is significantly different from group 1. The mean value of group 2 is higher than the other groups which means people who are using internet for recreation are experiencing withdrawal symptoms more than people who use internet for professional purpose or for both. There is no significant difference among three groups for functional impairment while for social impairment, occupational and relationship impairment, internet as a source of recreation and satisfaction, and compulsive behaviour, group 3 is significantly different from group 1 and 2. Again the mean value for group 2 is higher than group 1 and 2. This shows that when people use internet for recreation, there is social, occupational, relationship impairment and they use internet compulsively. Obsession with internet is a factor where group 1 is significantly different from group 3. The mean value for group 3 is higher than group 1 and 2 which implies that when people use internet for professional as well as recreational purposes, they get obsessed with internet. Group 2 is significantly different from group 1 and 3 on enhanced socialization through internet and perceived consequences of internet overuse factors and the mean values of these factors of group 2 is higher. Group 2 is using internet for socialization and experiencing the consequences of internet overuse more compared to other groups.

Table 15: Mean difference in the scores of internet overuse factors between different groups using different websites on internet

Variables	Group 1 (w,f,i) N = 355		Group 2 (y,t,g) N = 288		Group 3 (others) N = 436		Group 4 (all) N = 306		Group 5 (1,2) N = 671		F
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
W	31.14^{a}	19.77	25.78^{b}	12.28	32.21^{a}	19.66	27.20^{b}	10.85	26.96^{b}	15.42	9.74^{**}
FI	16.41^{a}	7.24	15.19^{b}	6.73	18.70	9.71	15.70^{ab}	6.22	15.26^{ab}	6.56	17.28^{**}
SI	9.18^{a}	3.13	8.20^{b}	3.10	10.64	4.19	8.59^{ab}	2.76	8.37^{b}	3.23	30.48^{**}
O & RI	8.25^{a}	6.50	6.74^{b}	3.96	8.59^{a}	6.54	6.06^{b}	3.15	6.48^{b}	3.46	17.74^{**}
CB	6.50^{ab}	3.02	6.08^{c}	2.92	6.87^{a}	4.33	5.71^{c}	2.32	5.92^{bc}	2.77	7.61^{**}
OwI	6.65^{a}	2.97	7.03^{a}	3.12	7.01^{a}	3.09	7.03^{a}	2.65	6.84^{a}	2.72	1.25
I- sof R&S	7.34^{a}	3.01	7.44^{a}	2.94	7.07^{a}	2.25	5.97^{b}	2.39	6.05^{b}	2.69	23.01^{**}
ES thr I	7.04^{a}	4.77	5.53^{b}	2.01	5.71^{b}	2.58	6.53^{ac}	2.44	6.00^{bc}	2.40	12.55^{**}
PCof Iou	4.21^{ab}	2.63	3.32^{c}	1.98	3.93^{ad}	2.29	4.14^{b}	2.33	3.62^{cd}	2.02	8.16^{**}

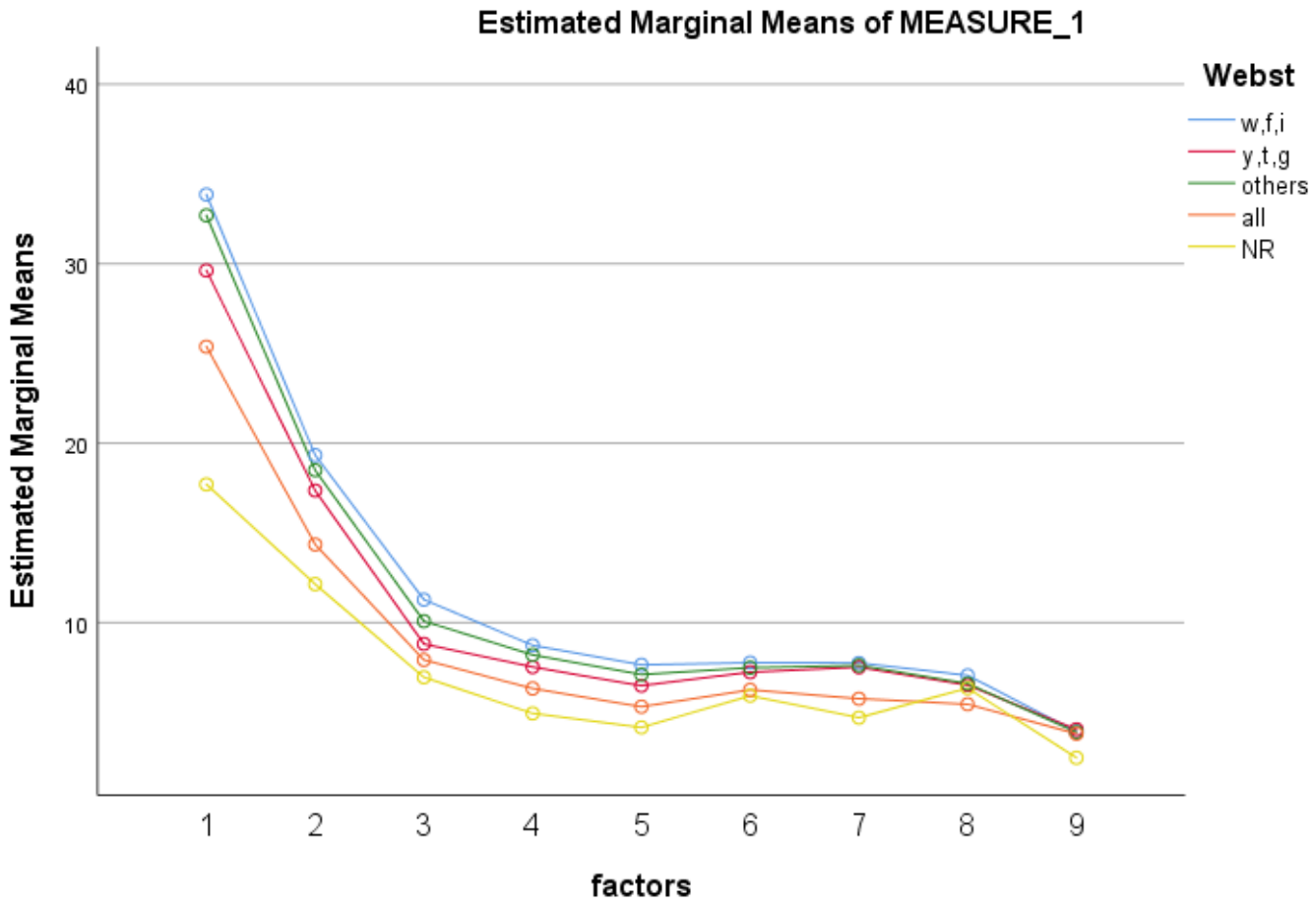


Figure 9: Profile Plot of the groups using different websites

Table 15 shows mean difference in the scores of internet overuse factors between the groups using different websites on internet. Group is using whatsapp, facebook and Instagram. Group 2 is using YouTube, twitter and Google. Group 3 is using other websites then group 1 and 2. Group 4 is using all mentioned websites and group 5 is using websites which group 1 and 2 are using. These groups show significant difference on all factors except obsession with internet. Group 3 is significantly different from group 2, 4 and 5 on withdrawal and occupational and relationship impairment. The mean value of group 3 is higher than other groups which shows that people who are using websites other than mentioned in group 1 and 2 do suffer from withdrawal symptoms and occupational and relationship impairment. For social and functional impairment, group 3 differs significantly from all other groups. The mean value of group 3 is higher than all other groups. Group 3 is suffering from social and functional impairment more than other groups. For the factor compulsive behaviour, group 3 is showing the highest mean value and it is significantly different from group3, 4 and 5. Group 3 is using internet more compulsively than other groups. There is no significant difference among the groups on obsession with internet factor. Groups 1, 2 and 3 differ significantly from groups 4 and 5 on internet as a source of recreation and satisfaction. The mean value of group 2 is higher than other groups. It implies that through YouTube, twitter and Google people are getting more recreation and satisfaction than other websites. For the factor enhanced socialization through internet factor, group 1 differs significantly from groups 2, 3 and 5 while groups 4 and 5 differ significantly from group1. The highest mean value is of group 1 which uses whatsapp, facebook and instagram for socialization which could lead to internet overuse. All groups show significant difference on perceived consequences of internet overuse factor where higher mean value is of group1, which means people who use whatsapp, facebook and instagram face more consequences of internet overuse than those who use other websites.

Internet overuse is a relatively new phenomenon to the domains of research in internet overuse. According to DSM5, more research is required from nomenclature to symptoms and treatment. So far whatever work is done, is presented here. A new tool is designed to measure internet overuse and its effects. For that many researches were referred, experts' opinions were sought, pilot study and then final study were conducted. Data were analysed and efforts were made to decide the factors of internet overuse. On the basis of those factors of internet overuse, it seemed suitable to call this tool 'Internet Overuse Scale'. The tool is still not yet standardized and further data analysis is still in process. Work on percentile norms will be calculated which will enable to decide the level of internet overuse, i.e. mild, moderate and severe. Regression analysis will be done to estimate the relationship between dependent variable and independent variables. All this work will be presented and discussed in the final submission of this research.

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