CHAPTER 4: METHODOLOGY

4.1 Research Design

Table 4: Sample for main study

	AGE	15 yrs.--25 yrs.		26yrs--35yrs		36yrs--50 yrs	
	GENDER	Male	Female	Male	Female	Male	Female
		620	650	139	262	161	292
HOURS OF INTERNET USE PER WEEK	14-21 hours	177	232	49	112	61	171
	28-35 hours	103	108	12	44	23	19
	35+ hours	340	310	78	106	77	102

4.2 Hypotheses

1. There will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in terms of hours they spend on internet.
2. There will be a significant difference in psychosocial behavioral outcomes of internet overuse among different age groups.
3. There will be a significant difference in psychosocial behavioral outcomes of internet overuse between males and females.

4. There will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in different occupation.
5. There will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals with different educational qualifications.
6. There will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals with different marital status.
7. There will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in terms of purposes for which they use internet.
8. There will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in terms of different equipment they use to access internet.
9. There will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in terms of different websites/applications they surf/use on internet.
10. There will be a significant difference in psychosocial behavioral outcomes of internet overuse among individuals in terms of the time spend on internet, different purposes of using internet, websites surf on internet and gadgets use to access internet.
11. Loneliness and self-esteem will significantly predict internet overuse.

4.3 Variables

Independent variables

1. Number of hours of internet use.

2. Age

3. Gender

4. Occupation

5. Education of the participants

6. Marital status

7. Equipment

8. Purpose of internet use

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9. Websites/Applications

Dependent variables

1. Psychosocial outcomes of internet use

2. Physical outcomes

3. Behavioral outcomes

4.4 Operational definition of Variables

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

4.5 Main Study

4.5.1 Sample of main study

The sampling may be considered as multi stage sampling. In the first stage school, colleges and societies in Anand and Vidyanagar were listed. Societies were randomly chosen. Schools and colleges are approached for data collection and the ones who gave permission were contacted. In the second phase random samples from the societies and selected schools and colleges were included. 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 adults (males and females) who are working in different sectors.

The sample represents all 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 26 to 50. All of them are using internet for various purposes. Individuals are from different linguistic background, ethnic groups, subcultures, and different religious backgrounds.

The sample was selected using the following criteria:

4.5.2 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.

4.5.3 Sample break-up

1. AGE

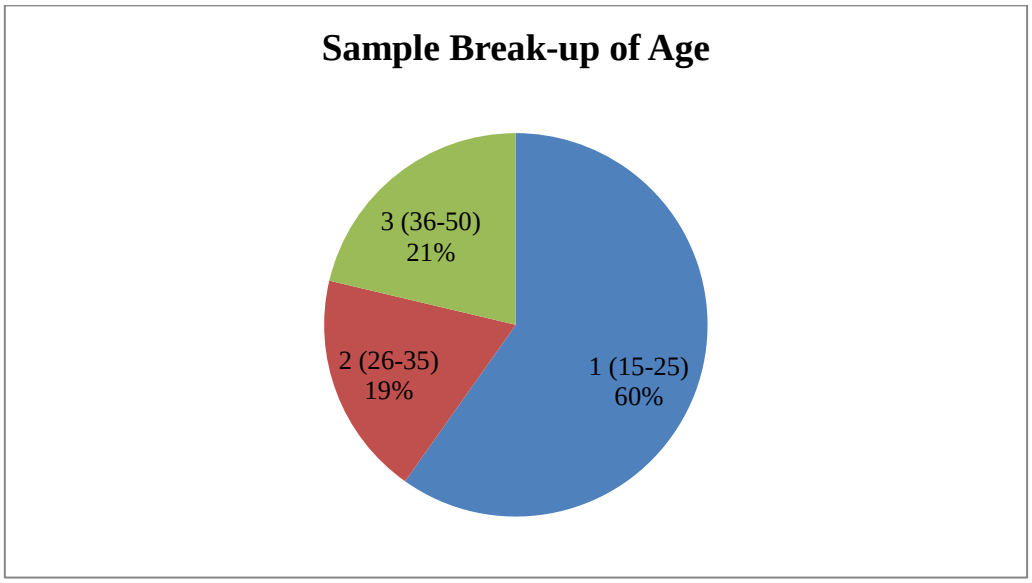

Figure 1: Sample break-up according to age

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. Number of subjects of first age group, i. e. 15-25 years, responding to the scale is more compare to other two age groups.

2. GENDER

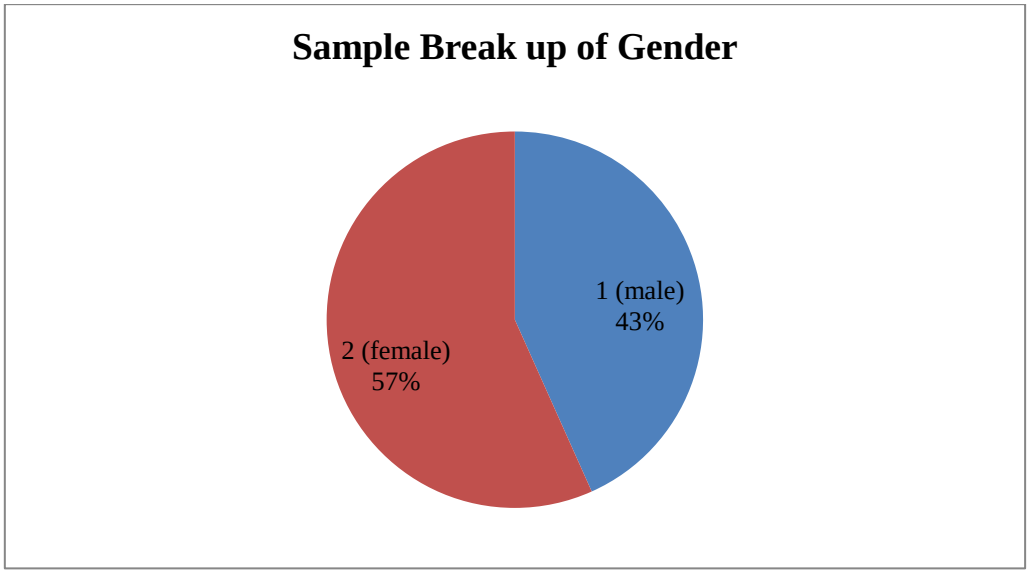

Figure 2: Sample break-up according to gender

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

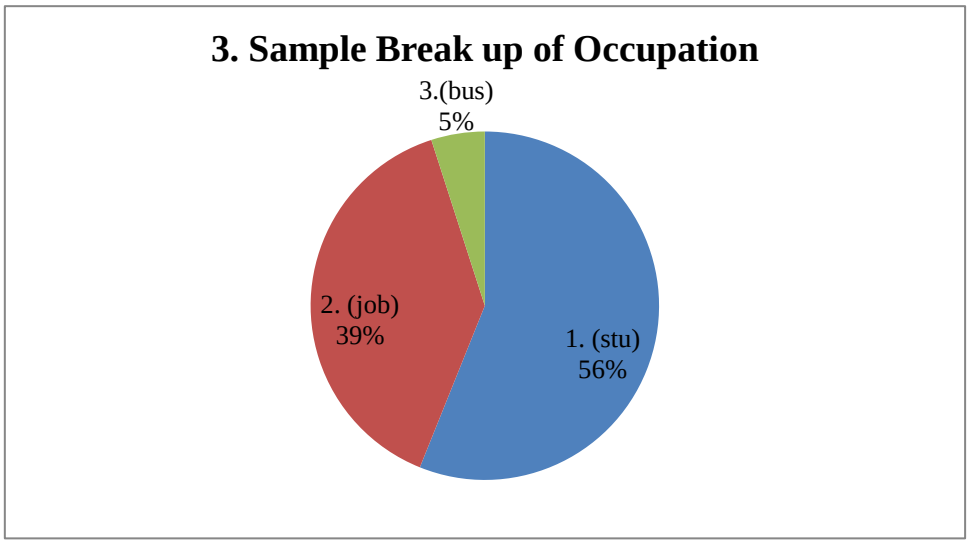

Figure 3: Sample break-up according to occupation

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

4. EDUCATION

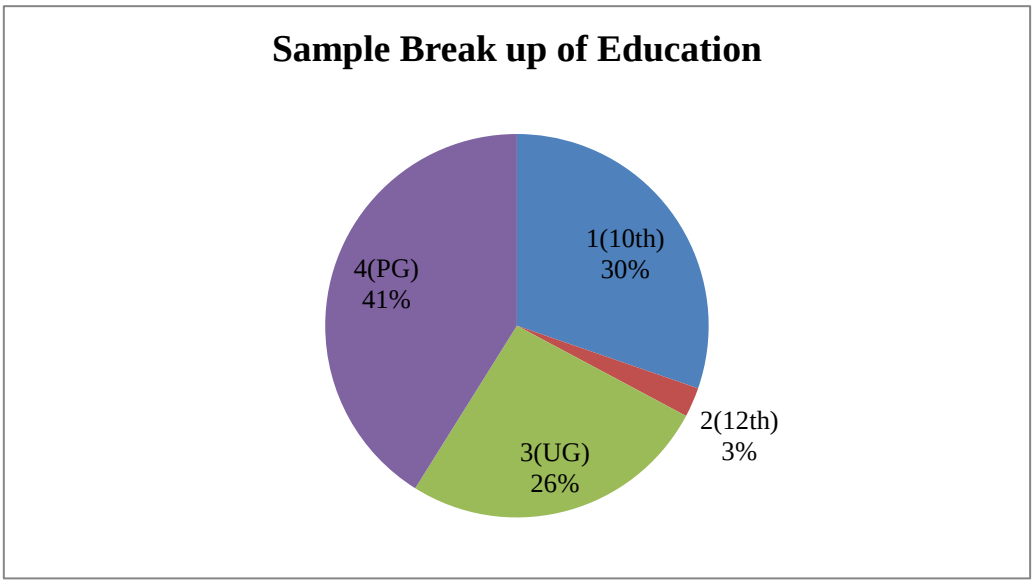

Figure 4: Sample break-up according to education

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

5. MARITAL STATUS

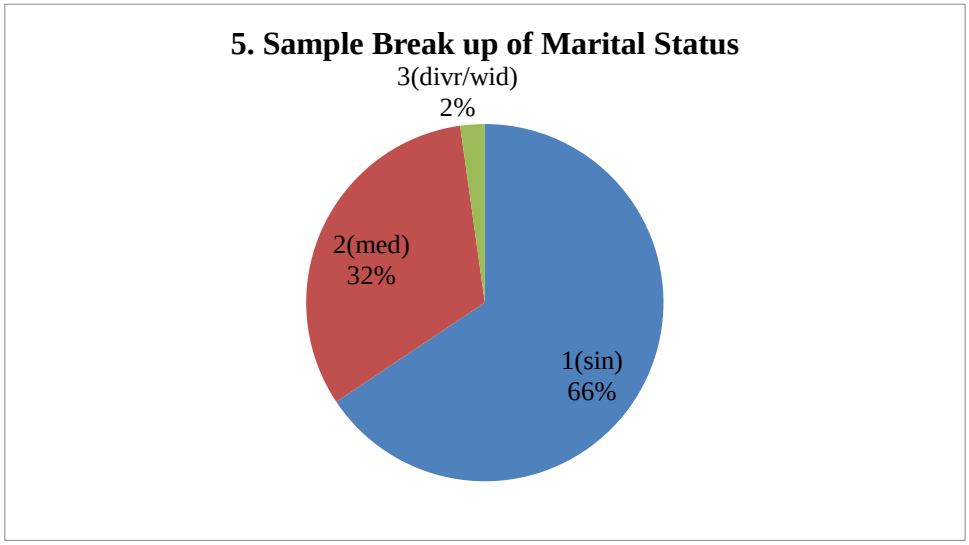

Figure 5: Sample break-up according to marital status

Marital status has three groups; single, married, divorced/widow. Out of 2124 subjects, 1386 are single, 679 are married, and 59 are divorced/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 the 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

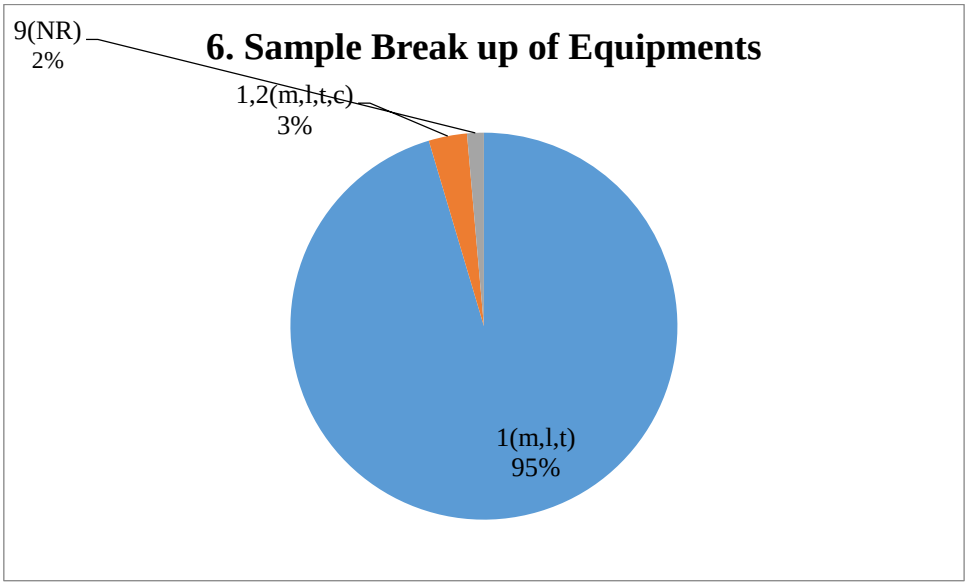

Figure 6: Sample break-up according to equipment

Few equipment were selected for this research, 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 or more of these equipment. Out of 2124 subjects 2027 are using mobile, laptop and/or tablet through which they access internet. Only 68 participants use all four equipment. Twenty-nine participants did not answer for this detail.

7. WEBSITES

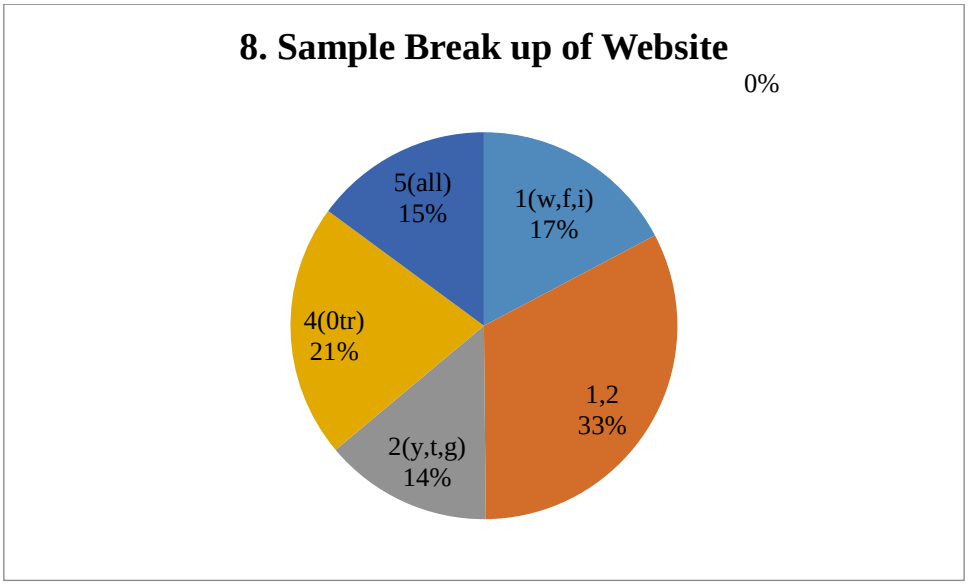

Figure 7: Sample break-up according to websites

The websites which individuals are using more, in general, were selected. 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. Number of participants opted for 'others' option is 436, which means they do not use above websites but use other websites which they have not mentioned. 306 participants use all these websites for various purposes. All the six websites mentioned in first and second groups are selected by 670 participants 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 use shopping sites but they also use other websites.

8. PURPOSE OF USING INTERNET

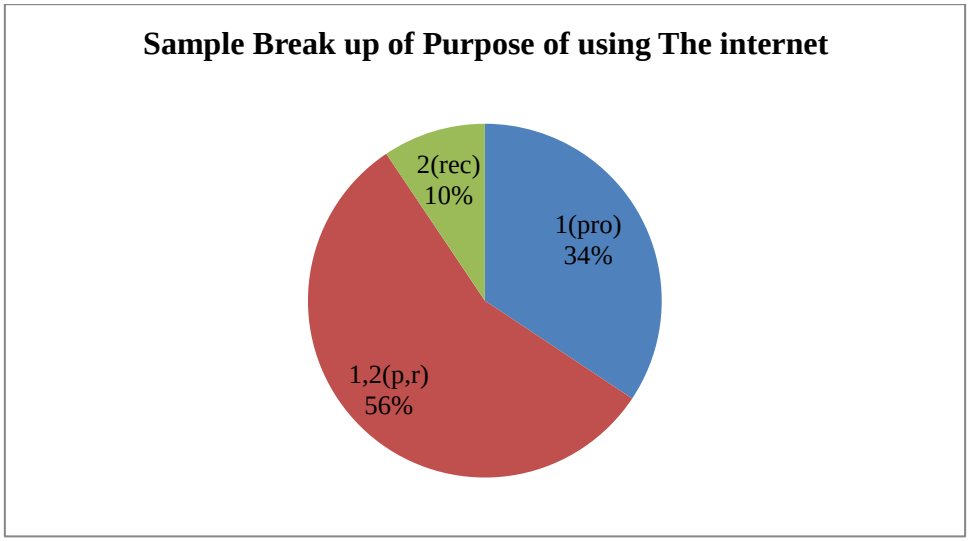

Figure 8: Sample break-up according to purpose of using internet

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, 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. Internet is used for recreational activities by 193 participants only and 1155 participants are accessing internet for recreational activities as well as productive reasons. Seventy 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.

Understanding the nature of internet overuse…….

9 HOURS PER DAY

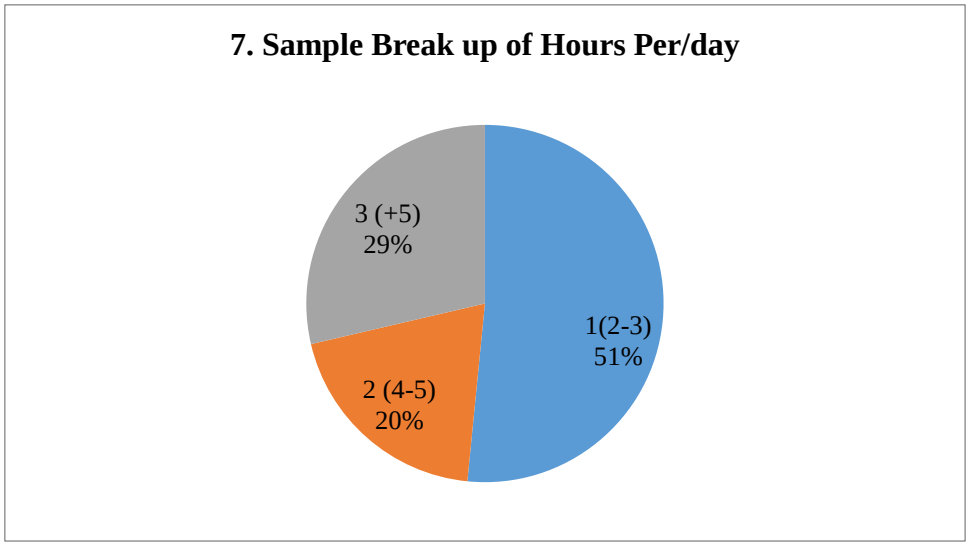

Figure 9: Sample break-up according to hours per/day

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

Participants using internet for 2-3 hours daily, so 14-21 hours weekly are 802 and 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 effects of internet overuse.

4.5.4 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 it can be said that they overuse internet. We also wanted to study the correlation between self- esteem of the participants and 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 individuals are more anxious and socially inhibited than non-lonely individuals. They are self-conscious and face difficulty handling rejection. It becomes difficult for them to make friends and start a social conversation because of their weak social skills. They do not feel confident to participate in group activities and because of low self-esteem they remain introvert and reserved. By including all three scales and administering them on the participants, we could establish the validity of the scale for internet overuse. Content 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 five- point scale. UCLA Loneliness scale is a four-point scale with 20 items and Rosenberg's self-esteem scale is a four-point scale with 10 items. Demographic details were same as the pilot study.

4.5.5 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. They were clarified that the research assesses the duration of the internet use, the purposes of internet use and its effects on people's life. The scales were administered on school and college 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 through 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 through 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.

4.6 Factor Analysis

Initially the factor analysis delivered 13 factors of which Inter-item consistency (Chronbach Alpha) was carried out. Scree plot produced 14 meaningful factors that have Eigen value of greater than one. Remaining 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 four factors were eliminated because one 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 nine 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 the forth factor. 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 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
	14. When I tried to cut down the excessive amount time I spend online, my fingers have done typing movements voluntarily or involuntarily.	.723		
	15. I am used to sacrificing sleep time so I can spend more time online.	.712		
	16. I have reduced my interaction with family and friends because of the time dedicated to being online.	.648		

	17. I eat food half-heartedly as internet occupies most of my attention.	.571		
	18. I have more fun with the people online than others.	.523		
	19. I find myself constantly thinking about the internet even when offline.	.461		
	20. I neglected regular/ day-to-day household responsibilities to spend more time online.	.438		
	21. Last week, I got less than four hours sleep at night because I was using the net.	.431		
3. Social Impairment			.65	2.56
	22. I say or do things on the internet that I could never do offline.	.574		
	23. Online relationship can be more fulfilling than offline.	.542		
	24. When I am offline, I am preoccupied with thoughts about things on the internet.	.507		
	25. I do not neglect my household chores/office work/academic work because of internet.	.435		
4. Occupational &Relationship Consequences			.84	2.08
	26. Due to my involvement with the internet, I have jeopardized or lost job.	.802		
	27. Due to my involvement with the internet, I have jeopardized or lost educational opportunity.	.790		
	28. Due to my involvement with the internet, I have jeopardized or lost career opportunity.	.680		
	29. Due to my involvement with the internet, I have jeopardized or lost a significant relationship.	.552		
5. Compulsive Behaviour			.75	1.83
	30. My productivity at work has decreased since I have started enjoying being online.	.670		
	31. My use of the internet sometimes seems beyond my control.	.643		
	32. I am more myself online than in real	.458		

	life.			
6.Obsession with Internet	33. I spend less time doing activities which I previously found pleasurable like playing outdoor games.	.607	.59	1.70
	34. I am unable to reduce the amount of time I spend online even though I want to.	.535		
	35. I keep checking my notifications even before some urgent task I have to take up.	.511		
7.Internet as a source of recreation & satisfaction	36. If it weren't for my computer, I wouldn't have any fun at all.	.711	.58	1.33
	37. Internet makes me calm.	.480		
	38. 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	39. I do not worry about relationship commitment when socializing online.	.673	.60	1.21
	40. I am friendlier online than in real life.	.670		
	41. 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	42. I do not like to sacrifice my sleep for the internet/online activities.	.807	.59	1.12
	43. I do not like to get late for my work/school/college.	.646		

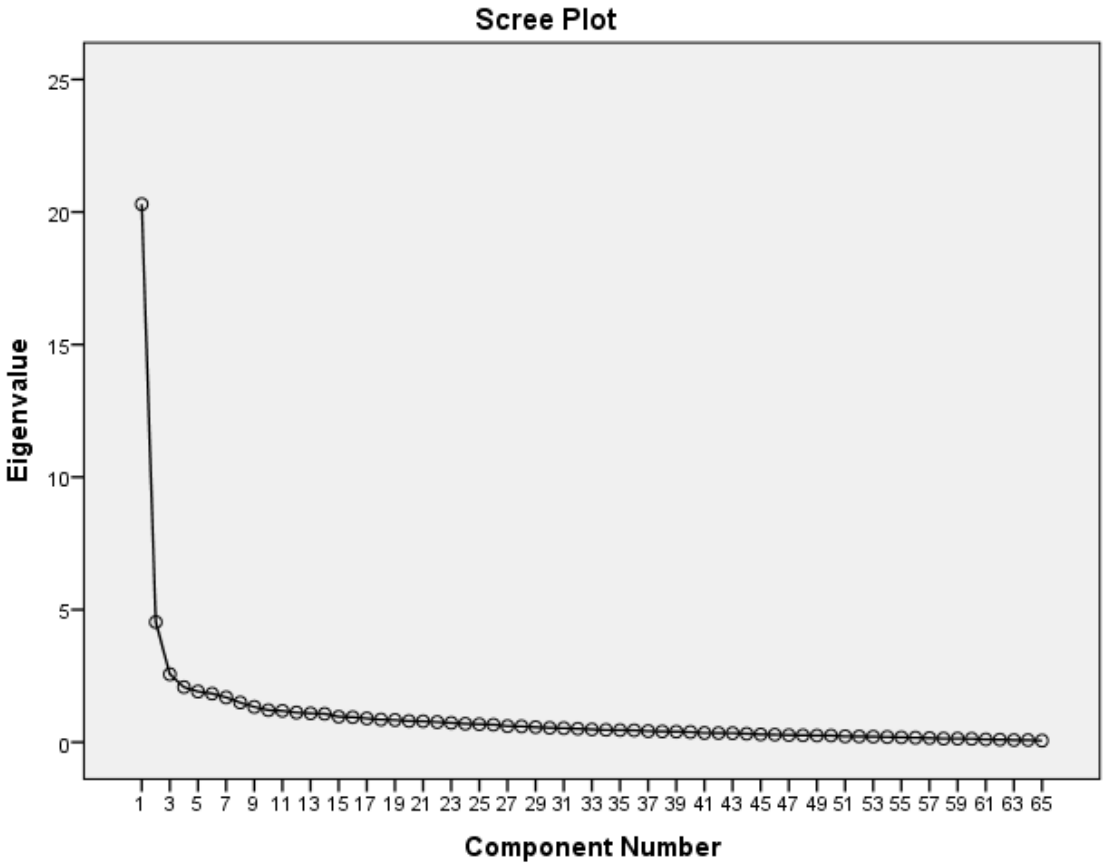

Figure 10: Scree plot with Eigenvalues and factors on internet overuse

4.6.1 Second factor analysis

The factor analysis in the main study gave nine factors with 43 items. After discarding the unnecessary and unstable factors and items, another factor analysis was performed to find the stable factors of internet overuse using principal component analysis and Varimax rotation method with Kaiser Normalization. Second factor analysis gave nine factors with 40 items. The factor withdrawal had 13 items in first factor analysis and it is the same in second factor analysis. One item from the factor functional impairment and two items from the factor social impairment are eliminated. Apart from that all factors are same with the same items in each one of them. These are the stable factors of internet overuse which are presented with their respective items, factor loading, Eigen values, factor variance, weightage, and chronbach alpha in table 6. Total three items are eliminated after the final factor analysis and now the scale has 40 items and nine factors. The factor social impairment has only two items now but they are retained as they do make the difference in the nature of internet addiction.

Table 6: Stable factors with factor loading, Eigen values, factor variance, weightage and Chronbach Alpha

	Items	Factor Loading	Eigen values	Percentage of variance	Factor weightage	Chronbach Alpha
1. Withdrawal	1. If I can't go online, I feel irritable.	.886	14.95	21.63	.33	.79
	2. If I can't go online, I feel anxious.	.881				
	3. If I can't go online, I feel restless.	.854				
	4. If I can't go online, I feel jittery.	.811				
	5. If I can't go online, I feel depressed.	.799				
	6. If I can't go online, I feel uncomfortable.	.797				
	7. If I can't go online, I feel angry.	.786				
	8. If I can't go online, I feel memory difficulties.	.686				
	9. If I can't go online, I feel moody.	.649				
	10. If I can't go online, I feel I cannot think straight.	.653				
	11. I use the internet when, I fell neglected.	.700				
	12. I use the internet when, I am angry.	.666				
	13. I use the internet when, I had bad interpersonal experience.	.633				
2. Functional impairment	14. When I tried to cut down the excessive amount time I spend online, my fingers have done typing movements voluntarily or involuntarily.	.715	3.38	9.45	.14	.65
	15. I am used to sacrificing sleep time so I can spend more time online.	.714				
	16. I have reduced my interaction with family and friends because of the time dedicated to being online.	.663				
	17. I have more fun with the people online than others.	.573				
	18. I eat food half-heartedly as internet occupies most of my attention.	.571				
	19. I find myself constantly thinking about the internet even when offline.	.540				
	20. Last week, I got less than four hours sleep at night because I was using the net.	.480				
3.Occupational &Relationship consequences	21. Due to my involvement with the internet, I have jeopardized or lost educational opportunity.	.814	1.98	6.78	.10	.67
	22. Due to my involvement with the internet, I have jeopardized or lost job.	.796				
	23. Due to my involvement with the internet, I have jeopardized or lost career opportunity.	.683				

	24. Due to my involvement with the internet, I have jeopardized or lost a significant relationship.	.544				
4.Internet as a source of recreation	25. 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.	.660	1.63	5.64	.09	.69
	26. If it weren't for my computer, I wouldn't have any fun at all.	.652				
	27. Internet makes me calm.	.444				
5. Compulsive behaviour	28. My productivity at work has decreased since I have started enjoying being online.	.725	1.50	5.40	.08	.68
	29. My use of the internet sometimes seems beyond my control.	.678				
	30. I am more myself online than in real life.	.486				
6.Social Impairment	31. Online relationship can be more fulfilling than offline.	.493	1.41	4.62	.07	.70
	32. I say or do things on the internet that I could never do offline.	.431				
7. .Enhanced socialization	33. I do not worry about relationship commitment when socializing online.	.695	1.35	4.23	.06	.70
	34. I am friendlier online than in real life.	.667				
	35. 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.	.459				
8. Perceived control of internet overuse	36. I do not like to sacrifice my sleep for the internet/online activities.	.798	1.11	4.15	.06	.72
	37. I do not like to get late for my work/school/college.	.628				
9.Obsession with internet	38. I keep checking my notifications even before some urgent task I have to take up.	.719	1.06	4.12	.06	.70
	39. I spend less time doing activities which I previously found pleasurable like playing outdoor games.	.573				
	40. I am unable to reduce the amount of time I spend online even though I want to.	.522				

4.6.2 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*: Measures how the internet overuse affects functionality of the individual like, the person sacrifices sleep to be on internet, reduces interaction with family and friends, eat food half-heartedly and constantly thinking about internet when offline.
- *Social impairment*: Measures the impairment in real life social relationships like, say or do things online which could not be done offline, and enjoy online relations more than offline.
- *Occupational & relationship consequences*: Measures to what extent the individual has jeopardized/lost job/educational opportunity/career opportunity/significant relationships, because of internet overuse.
- *Obsession with internet*: Measures the obsession in terms of less time spent on other pleasurable activities, unable to reduce the amount of time on internet, and can't avoid checking notifications.
- *Internet as a source of recreation*: When a person feels there is no fun without computer and enjoys all kinds of recreational activities like watching movies or playing games online rather than going out with others.
- *Enhanced socialization*: Measures individual's affinity to become friendlier online than in real life, and lie to family and friends as relationship commitment is not so important.
- *Perceived control of internet overuse*: The perception of the individual about his ability to control his internet overuse to make his life functional.

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".

4.6.3 Reliability and Validity

Reliability: Chronbach α was calculated for establishing reliability of the developed scale for internet overuse. Chronbach α is the measure of internal consistency, i.e., how closely related a set of items are as a group. It is an indicator of consistency. Table 6 shows the factors with Chronbach Alpha and other values.

Validity:

Content Validity:

To validate the contents which should be covered to measure the internet overuse, experts' opinions were sought and collected. Many items were modified or eliminated from the scale on the basis of experts' opinion during the process of developing 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 (2001) introduced a cognitive-behavioral model of PIU, asserting that psychosocial problems like loneliness and depression inclined some individuals to display impaired thoughts and behaviors on internet that result in negative outcomes (Davis, 2001; Davis, Flett, & Beser, 2002; Caplan, 2002, 2003).

Loneliness, frustration (Kraut et al, 1998), and depression (Young & Rogers, 1998) are negative psychosocial outcomes of internet overuse. Individuals who use internet for longer hours tend to interact less with family members, have few friends, and suffering heavily with depression and loneliness than those who use internet for lesser hours. The opposite 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

use internet just to get socialize or also for some other reasons like improving psychological health (Whitty & McLaughlin, 2007). Internet is a medium for communication and recreation for lonely individuals. It gives them a safe social life including the fun element which they were deprived of in real life. Pressures and stress of daily lives motivate people to turn to the internet which helps them to forget those pressures for few hours and make them enjoy. Increased use of internet helps individuals to decrease the level of loneliness and depression and increase the 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.

4.6.4 Percentile Norms

The researcher decided to use percentile norms to decide the severity of internet overuse among different age groups so that it can be used by the counselors and therapists to understand to what extent the overuse has been resulted in addictive behavior and can design counseling and therapy accordingly.

4.6.4.1 Calculation of total index score for the scale for the purpose of finding norms

The percentage of variance explained by each factor was seen from the factor table. The weightage for each factor was found out by the formulae;

Variance explained by factor ÷ variance explained by the total scale items.

To illustrate, the variance of the factor withdrawal is 21.63 and the variance by the total scale items is 66.02 so the weightage of the factor withdrawal is 0.33. The factor weightage was multiplied with the respective score of each factor to get individual weightage score for each respective factor. The sum of weightage scores of all nine factors gave the indexed addiction score. This is the total score of internet overuse scale which is used for the calculation of the percentile norms for total score, total score for two age groups as well as individually for nine factors. This will finally lead to decide the levels of internet overuse, i.e. mild, moderate and severe.

Procedure of converting row score into index score

There are three age groups in this research: 15-25 years, 26-35 years and 36-50 years but to calculate percentile norms, last two groups are merged. It is revealed from data analysis that the second and third groups are not significantly different on most of the variables. They

differ significantly from group 1 which is of younger population. The researcher has decided that the total score of internet overuse at 75, 90 and 95 percentiles for total sample and for two age groups should be calculated. The reason for choosing 75, 90 and 95 percentile is individuals use internet for productive and non-productive reasons and it is very difficult to segregate both usages in terms of time. Nobody can say precisely how many hours individuals spend for productive work and how much time they engage in recreational activities on internet. It is generally observed and proved by many researches that individuals suffer from negative consequences of internet overuse when they are involved in recreational, i.e., non-productive, activities on internet. The scale developed in this research too can't differentiate the productive and non-productive uses in terms of time but it can be said that if the participants are suffering with the consequences of internet overuse then that usage would be more of non-productive purposes than productive ones. At the same time it can't be said that they are not using internet for productive reasons at all. Severe internet overuse, say at 95 percentile, indicates that these individuals experience the consequences of internet overuse severely possibly because non-productive use of internet is more than productive use. It is observed that when individuals use internet for non-productive reasons like entertainment, chances are more for them to get addicted to internet and to use it compulsively. Higher score on the internet overuse scale, developed by these researchers indicates that individuals are accessing internet more for non-productive purposes than productive purposes. In the same way moderate users will be those at 90 percentile and mild users are at 75^{th} percentile. Below 75th percentile too individuals experience the symptoms of internet overuse but they might not need treatment or the symptoms are manageable as they also use internet for productive purposes and not spending too much time for recreational activities. Individuals who consume alcohol, all cannot be labeled as alcoholics or addicts. Similarly, every person who uses internet can't be called internet addict or overusing the internet. It should be decided on the basis of the score of the internet overuse scale. It is better to select extreme score of internet overuse to decide the level of overuse as that possibly proves the usage is more on non-productive than productive side. The total score of internet overuse at 75, 90 and 95 percentiles for total sample and for two age groups are presented in table 7.

Table 7: Score of total sample and in both age groups at 75, 90 and 95 percentiles

	Mean	Median	Mode	SD	75 percentiles	90 percentiles	95 percentiles
Total sample (2124)	14.44	12.55	16.37	6.75	17.21	23.63	26.14
15-25 years (1270)	15.98	14.36	16.37	6.90	19.45	24.73	27.02
26-50 years(854)	12.16	9.96	8.02	5.83	14.10	19.20	23.28

Above table shows that individuals from 15 to 25 years of age have higher score than older group. The mild, moderate and severe levels of internet overuse are decided from this score. Table 8 shows these scores.

Table 8: Scores to identify mild, moderate and severe Internet overuse

	Mild Internet overuse	Moderate Internet overuse	Severe Internet overuse
15-25 years	19-23	24-27	Above 27
26-50 years	14 - 18	19-23	Above 23

In younger group, participants who have higher score than 27 are severely addicted to the internet; participants with the scores between 24 and 27 are moderately addicted and scores 19 to 23 indicate mild internet overuse.

The score for each factor at 75, 90 and 95 percentiles is shown in table 9.

Table 9: Percentile norms of each actor for 15-25 years

Statistics

		W	O_RC	CB	OwI	I_R	ES	PCofIU	FI	SI
N	Valid	1270	1270	1270	1270	1270	1270	1270	1270	1270
	Missing	0	0	0	0	0	0	0	0	0
Mean		31.81	7.87	7.00	7.49	7.40	6.68	5.52	14.09	4.45
Median		28.00	6.00	7.00	7.00	7.00	6.00	5.00	12.00	4.00
Mode		21.00	4.00	4.00	6.00	9.00	5.00	5.00	7.00	2.00
Std. Deviation		16.77	4.63	2.90	2.85	2.81	3.29	2.03	5.96	2.10
Skewness		2.36	1.58	.59	.34	.42	2.35	.45	.80	.94
Std. Error of Skewness		.07	.07	.07	.07	.07	.07	.07	.07	.07
Kurtosis		8.67	2.6	.094	-.49	-.43	10.90	-.01	-.34	1.12
Std. Error of Kurtosis		.14	.14	.14	.14	.14	.14	.14	.14	.14
Percentiles	25	20.00	4.00	4.00	5.00	5.00	4.00	4.00	9.00	3.00
	50	28.00	6.00	7.00	7.00	7.00	6.00	5.00	12.00	4.00
	75	39.00	10.00	9.00	9.00	9.00	8.00	7.00	18.00	6.00
	90	50.00	15.00	11.00	11.00	11.00	11.00	8.00	23.00	7.00
	95	57.00	17.00	12.00	12.00	13.00	12.00	9.00	26.00	8.00

Table 9 shows that participants who are between 15 and 25 years of age, 57 and above is the score for severe withdrawal. If a person scores 57 or above for the factor withdrawal, it means he is severely suffering with withdrawal because of internet overuse. Participants who score between 50 and 57 are moderately suffering with withdrawal while those who score between 39 and 49 are mildly suffering with withdrawal.

Norms for occupational and relationship consequences are, score above 17 is severe, between 15 and 17 is moderate and the score between 10 and 14 is mild.

Participants who score above 12 are suffering severely with compulsive behaviour while those score 11 and 12 are moderately suffering and scores 9 or 10 are showing mild compulsive behaviour.

Norms for obsession with internet are, above 12 is severe, 11 and 12 is moderate and scores 9 and 10 indicate mild level of obsession with internet.

Norms for internet as a source of recreation are, above 13 is severe, between 11 and 13 are moderate and scores 9 and 10 are showing mild level of suffering with the factor.

Score above 12 is severe level of enhanced socialization, scores 11 and 12 show moderate level and scores 8, 9 and 10 indicate mild level of enhanced socialization.

Norms for perceived control of internet use are, above 9 is severe, 8 is moderate and 7 is mild level of this factor.

Functional impairment is a very important factor of internet overuse. The norms for this factor are, above 26 is severe level, between 23 and 26 is moderate level and between 18 and 22 is mild level of functional impairment.

Norms for social impairment are, above 8 is severe level, scores 7 and 8 are moderate and score 6 is showing mild level of social impairment.

Table 10: Percentile norms of each actor for 26-50 years

Statistics

		W	O_RC	CB	OwI	I_R	ES	PCofIU	FI	SI
N	Valid	854	854	854	854	854	854	854	854	854
	Missing	0	0	0	0	0	0	0	0	0
Mean		23.89	6.29	5.00	5.99	5.60	5.32	5.78	10.63	3.28
Median		19.00	4.00	4.00	6.00	5.00	5.00	6.00	9.00	2.00
Mode		14.00	4.00	3.00	3.00	3.00	5.00	6.00[a]	7.00	2.00
Std. Deviation		14.47	5.25	3.19	2.75	2.19	2.11	2.30	5.43	1.90
Skewness		3.27	3.70	4.48	.79	.80	1.31	.71	2.50	2.39
Std. Error of Skewness		.08	.08	.08	.08	.08	.08	.08	.08	.08
Kurtosis		14.49	15.35	27.02	-.14	.33	2.07	.81	7.22	7.89
Std. Error of Kurtosis		.17	.17	.17	.17	.17	.17	.17	.17	.17
Percentiles	25	14.00	4.00	3.00	4.00	4.00	4.00	4.00	7.00	2.00
	50	19.00	4.00	4.00	6.00	5.00	5.00	6.00	9.00	2.00
	75	28.00	6.00	6.00	8.00	7.00	6.00	7.00	12.00	4.00
	90	40.00	10.00	8.00	10.00	8.00	8.00	8.00	16.50	5.00
	95	47.00	13.00	9.00	11.00	10.00	9.00	10.00	20.00	8.00

a. Multiple modes exist. The smallest value is shown

Table 10 shows three levels; mild, moderate, severe, of each factor of internet overuse a person could suffer with for the age group of 26-50 years. The norms for withdrawal are, above 47 is severe, between 40 and 47 is moderate and between 28 and 39 is mild level of withdrawal.
The score 13 is severe, between 10 and 13 is moderate and between 6 and 9 is mild level of the factor occupational and relationship impairment.

The norms for compulsive behavior are, above 9 is severe, scores 8 and 9 show moderate level and scores 6 and 7 show mild level of compulsive behavior.

People who score above 11 for the factor obsession with internet show severe level of obsession, moderate level is scores 10 and 11 and mild level is of 8 and 9 scores.

Norms for internet as a source of recreation are, above 10 for severe level, between 8 and 10 is moderate and score 7 is mild level of recreation.

If a person score above 9 on enhanced socialization, he is severely suffering with this factor. It means the person is using internet mainly for socialization. Norms for this factor are 8 and 9 for moderate level and 6 and 7 are mild level.

Norms for perceived control of internet use are, above 10 is severe level, between 8 and 10 is moderate level and score 7 implies mild level.

Norms for functional impairment are, above 20 is severe level, between 16 and 20 is moderate level and between 12 and 15 is mild level of functional impairment.

Norms for social impairment are, above 8 is severe, between 5 and 8 is moderate and score 4 is mild level.

With the above findings the psychometric properties of the internet overuse scale is established. This will now be used for testing the hypothesis constructed in chapter two.