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1 Title of the Project:

Behavioral addiction in the community: an exploration

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4 Date of commencement:

19th June, 2012

5 Duration:

15 months

6 Date of completion:

19th September, 2013

7 Objectives as approved:

- To estimate the burden and magnitude of behavioral addiction in the community
- To estimate the impact of behavioral addiction
- To assess the socio-demographic correlates of behavioral addiction

8 Deviation made from original objectives if any, while implementing the project and reasons thereof.

- The proposed sample size for the study was 2800 initially. But since few data sheets were incomplete and or with few errors, the actual sample analyzed was 2755.
- Tools were modified based on the feedback from the pilot study.
- During the pilot study, physical & psychological distress component were present among the participants and in order to screen out physical & psychological distress, General health Questionnaire (GHQ-5) & Modified-Mental Screen (MMS) were added to the survey schedule.

9 Experimental work giving full details of experimental set up, methods adopted, data collected supported by necessary tables, charts, diagrams and photographs.

Uncertainty and instability are frequently the norm in today's life. This unpredictability leads to an increase level of discomfort and distress among people as they try to accomplish their day to day objectives and achieve their professional goals. It has further contributed to the presence of substance use and a variety of behavioral addiction(like internet ,video game ,online chatting, exercise, sex ,shopping, gambling etc . Behavioral addiction(also called process addiction or "non-substance-related addiction".) is a recurring compulsion by an individual to engage in some specific activity, despite harmful consequences, as deemed by the user himself to his individual health, mental state, or social life. For example, while shopping sometimes is acceptable, but when shopping becomes such an integral part of one's life, to the point of bankruptcy, then it would be shelved as an addiction.. Past researches on behavioral addictions has focused mostly on compulsive gambling, overeating and compulsive sexual behavior (Young 1996).

The rationale for the existence of this category is that compulsive behaviors follow the same clinical pattern and may even derive from the same neural network as compulsive substance use(DSM-V) (1, 2).Some of the symptoms common to all behavior addictions includes mood swings, gaining feeling of euphoria from the activity, compulsive need to act out the behavior, obsessive thinking about and planning the behavior and allowing the behavior to take precedence over work, health, and family . Many people with pathological gambling, kleptomania, compulsive sexual behavior, and compulsive buying report a decrease in these positive mood effects with repeated behaviors or a need to increase the intensity of behavior to achieve the

same mood effect, analogous to tolerance (Grant, Brewer & Potenza,2006) as in substance use. Problem gambling frequently occurs in concert with other process addictions, particularly an involvement with risky sexual practices. Cultural and social factors also influence the measurement of the prevalence of behavioral addiction. Approximately three to six percent of adults in the US are affected by compulsive sexual behavior (Kaplan & Kruger, 2010).31% of working Canadian aged 19-64 years identify themselves as workalcoholic (keowan, 2007). Male youth are overrepresented in a number of problem behaviors particularly problem gambling (Petry,2006). In the older group, problem gambling manifests more among female due to absence of a partner, to have too much idle time & to have disabilities (McNeilly & Burke, 2000). Higher rates of pathological gambling are observed in men, with a telescoping phenomenon observed in females (i.e., women have a later initial engagement in the addictive behavior, but foreshortened time period from initial engagement to addiction) (Potenza , Steinberg , McLaughlin , Wu , Rounsaville & O'Malley ,2001). Only 8%of gym users has exercise addiction. Three percent of them report that they cannot stop exercising. (Hartney 2011) Social and economic marginalization has been found to correlate with a host of negative conditions including problem gambling (Orford et al 2009) & it also correlates with presence of comorbid psychiatric problems (Petry, 2006) .Problem gambling is also associated with factors related to subjective distress (including depression, anxiety, and stress), loneliness, and social isolation in both adult and adolescent populations (Kessler, Hwang, & LaBrie, 2008). Gambling co-occurs with a broad range of mental health conditions like mood disorders, and psychotic disorders (Cunningham-Williams, Cotler, Compton & Spitznagel, 1998)

8% reported lifetime internet gambling and weekly gambling on the internet was 3.6 %(Ladd and Petry, 2002). Majority of the sex addicts reported loss of productivity in the workplace. (Carnes, 1992). 70% of all adult content traffic occurs during the 9-to-5 workday timing (Branwyn, 1999) and that adult sites are the fourth most visited category while at work (Goldberg, 1998). While five percent of the workforce struggles with problems related to sexual compulsivity. Amongst them, 80% are male, (Delmonico, 2002). 20% of men and 12% of women reported using the internet at work for sexual pursuits (Cooper, Scherer, Boies, and Gordon, 1999). Consequently, the prevalence of use on-the-job has been estimated as low as 1% and as high as 39 %.(Ames, 1993 & Newcomb, 1994) .Mood disorders (72%), anxiety disorders (38%), and substance abuse (40%) are the most frequently observed in patients with sexual addictions (Kafka & Henen, 2002).

Woelflin et al, 2009, an estimated 1.5 million people, i.e., 3% of the German population is believed to be at risk of Internet addiction. The rate of problematic Internet use in Italian adolescents was 5.4% (Pallanti, Bernadi & Quercioli, 2006). 18.3% to be pathological Internet users among British students (Neimz et al, 2009). Among teenagers aged 13 to 18 years, 10.2% used the Internet moderately and 6% was severely addicted to internet (Lam, Peng, Mai & Jing, 2009). 5% were compulsive buyers in the U.S (Goodman, 2008).

The St. Louis Epidemiologic Catchment Area (ECA) study found high rates of co-occurrence for substance use disorders (including nicotine dependence) and pathological gambling, with the highest odds ratios generally observed between gambling, alcohol use disorders, and antisocial personality disorder (Cunningham-Williams, Cottler, Compton, & Spitznagel, 1998). The relative risk for an alcohol use disorder increased 3.8-fold when disordered gambling was present in Canadian epidemiological survey (Bland, Newman, Orn & Stebelsky, 1993). Among individuals with substance dependence, the risk of moderate to high severity gambling was 2.9 times higher (El-Guebaly , Patten , Currie , Williams , Beck , Maxwell & Wang,2006). Odds ratios ranging from 3.3 to 23.1 have been reported between pathological gambling and alcohol use disorders in U.S. population-based studies (Cunningham-Williams, Cottler , Compton, Spitznagel,1998). Internet addiction was associated with harmful alcohol use (odds ratio of 1.84) in a study of 2,453 college students, after controlling for gender, age and depression (Yen, Ko, Yen, Chen & Chen, 2009).

There is a need to assess the magnitude, burden and impact of behavioral addiction in Indian context. Since it's the first of its kind work in India, present study is going to focus on assessment of magnitude, burden, impact of behavioral & socio-demographic correlates of behavioral addiction in a urban community. The selected community will be the representative of the socio-demographic characteristics. In the future, this work will be taken at the rural & workplace level.

9.1 RESEARCH METHODOLOGY

Sample: 2800 subjects were approached for administration of schedule using house to house survey for screening behavioral addiction.45 protocols could not be considered for analysis due to inadequate information. Total 2755 were taken for analysis. It includes 1392 males and 1363 females.

Study area: Urban localities chosen based on the representative group of socio-economic status in East Bangalore (Austintown, Neelasandra, BDA, Yerappa Garden, Vivek Nagar, Vannarpet & Ejipura).

Study population: Residents of above mentioned localities of Bangalore.

Study Design: Cross sectional study adopting a house to house survey

Inclusion criteria:

Above 18 years (18-65)

Both male & female

Exclusion criteria:

Inability to read & write English or regional language

Sampling:

After excluding predominantly commercial areas, localities within Bangalore city fairly representative of the socio-demographic characteristics were randomly chosen from amongst the other residential areas.

Tools:

Socio-demographic profile data sheet: was prepared by the researcher for collecting socio-demographic information on psychosocial variables related to drug use & behavioral addiction. The demographic schedule has mainly 3 parts.

Part I: Socio-demographic information (age, gender, socioeconomic status, marital status, education, occupation, family status, psychosocial issues such as details regarding loans taken by the individual as well as history of any police case for the patient).

Part II: Specific Questionnaires for assessing Psychological distress and Behavioral Addictions (General Health Questionnaire; Modified mini screen and items to screen behavioral addictions).

Part III: Questions to assess the impact of Behavioral Addictions: (Items related to need for change assessment, impact on psychosocial aspects, and monthly expenditure for selected activities to assess the economic burden).

Internet addiction test: It is a 20 item questionnaire based on 5-point Likert scale covering the degree to which their Internet use affects their daily routine, social life, productivity, sleeping pattern and feelings. The minimum score is 20 and the maximum score is 100; the higher the score, the greater the problem, the Internet use causes. The scale showed moderate to good internal consistency (alpha coefficients: 0.54 to 0.82). It was validated by its personal and general Internet usage (Young, 1999; Widyanto, McMurrin, 2004).

The Lie-Bet Tool: It is two items questions tool, used to rule pathological gambling behaviors. The Lie-Bet's two questions consistently differentiate between pathological gambling and non-problem gambling. (Johnson et al 1988)

Eating Addiction test: The EAT-26 - used in a non-clinical as well as a clinical setting not specifically focused on eating disorders. (Garner et al 1982)

Exercise addiction Inventory: It's a six item scale. It identifies the people at risk for developing exercise addiction. It got good internal reliability & validity. (Griffith, Szabo & Terry, 2005)

Sex addiction screening test: It is designed to assist in the development of sexually compulsive behavior which may indicate the presence of sex addiction. It helps to discriminate the addictive and non addictive behavior. (Carnes, 1992)

Work Addiction Test: It is a 25 items self report questionnaire based on work habit description. It measure five functional indicators of work addiction: compulsive tendencies, control, impaired communication, inability to delegate and self worth. It is rated on 4point Likert scale. (Robinson, 1999)

Behavioral Addiction Screening Items: The items for screening were evolved through focus group discussion (participants were professionals working in mental health area/substance use, overview of literature and available state. It has overall 28 items (excluding questions for facebook, gambling and exercise addictions.). Each addiction has 4 items to be scored in the range from-None (0) to Always (4). These items were focused on craving/compulsion/control& consequences. Score of 12 and above for each state indicates presence of addiction. Content validation was carried out for these items through focus group discussions/ experts rating (mental health professionals having an experience of 8 to 10 years).

Procedure:

Pilot Study:

Available scales of behavioral addiction were administered on 20 subjects. Majority of them have suggested reducing the available items for assessment of each of the behavioral addiction as well as modification of some items. The issues were discussed in ten focus group discussions conducted with mental health professionals (having an experience of 8 to 10 years in mental health setting). Based on this and the participant feedback, the questions were evaluated to address the four components of addiction. Each domain has four items for screening the presence of addiction. For face book, exercise and pathological gambling, standardized instruments proposed in the research protocol were used, as they are short and easy to administer. Screening

items were developed for other behavioral addictions (internet, mobile phone, TV, work, sex, eating and shopping addictions) based on 4 components as criteria:

1) Control; 2) Craving; 3) Compulsion; 4) Consequences.

Under each behavioral addiction, the researcher developed 20 items each for the 4 components (i.e., total of 80 questions for each addiction. These items were evaluated by mental health experts for assessment of mental health variables, subsequently item deduction and content validation was carried out. One question for each of the component (total 4 items for each component) was included for the final data sheet. These items were selected based on appropriateness, meaning, and easy understanding of the component.

General health Questionnaire – 5 and **Modified Mental Screening Questionnaire** were added to the tool to screen out the general health problems and mental health issues.

General health Questionnaire – 5(C. Shamasunder): This is a first stage screening tool with validity of sensitivity of 86%, specificity of 89% with a cutting point of 1/2.

Modified Mental Screening Questionnaire (Sheehan et al (1998): The Modified Mini Screen is a 22 item questionnaire that may be administered by a clinician in about 15 minutes. Questions relate to signs of distress that may be attributed to a diagnosable psychiatric disorder. The screen is divided into 3 sections to capture the three major categories of mental illness as follows.

Section A – Mood Disorders

Section B – Anxiety Disorders

Section C – Psychotic Disorders

Scoring of the MMS is straightforward and additive—each YES in the screen counts as 1. The clinician adds all the positive responses for a total score which ranges from 1 to 22.

Prepared socio-demographic data sheet consists of three parts:

Part I: Socio-demographic information - which includes age, gender, socioeconomic status, marital status, education, occupation, family status. This also included the details regarding loans taken by the individual as well as history of any police case for the patient. These aspects are incorporated as to find if there is any relation between these psychosocial issues and Behavioral Addiction.

Part II: Specific Questionnaires for assessing psychological distress and Behavioral Addictions: Before asking these questions, the individuals were screened for general health and mental status. This includes General Health Questionnaire for assessing general physical health condition-which has 5 items; Modified mini screen (is a 22 item questionnaire to screen for mood disorder, anxiety disorder and psychotic disorder). It has items to screen behavioral addictions with a total of 45 questions. (Work, eating, shopping, sex, mobile, TV, internet, face book, exercise & gambling).

Part III: Questions to assess the impact of Behavioral Addictions: This section includes 35 items related to need for change assessment, impact on psychosocial aspects, and monthly expenditure for selected activities to assess the economic burden the individual has due to these addictions.

The tools were translated to local language of Kannada for convenience. The field workers were trained regarding data-collection procedure and they administered it on 10 subjects to get familiarize them with tools and also to check on time taken and item difficulty. Self report of expressed difficulty of the field investigators includes-“I find it difficult to ask about their personal questions on sex addiction”; people are reluctant to answer to such a long questionnaire”. Role play sessions were conducted to address their administering style as well as difficulties in administering. These suggestions in the form of modifying the position of questions in the questionnaire as well as in the pattern of data collection were also incorporated in the final tool. The modified questionnaire was administered on 50 representative subjects.

Main Study:

With the available information about the localities, population distribution and the economic status of the areas for study, the researchers prepared an area map. The researcher collected information regarding the areas planned to conduct the study through the primary health centers as well as with the help of ward officers of *Bruhat Bangalore Mahanagara Palike (BBMP)*. Based on the area map prepared, the investigators prioritized the areas in East Bangalore (Austintown, Neelasandra, BDA, Yerappa Garden, Vivek Nagar, Vannarpet & Ejipura). The profile of residents in these areas includes wider representation of all economic classes. The researcher prepared individual monitor sheet for each field investigator which includes the date of data collection, person’s identity code, age, gender, occupation, status of the datasheet as whether it is complete or incomplete, number of attempts to approach, and time taken to complete it. This helped to make the age wise classification and to review on monthly entry of

data. Weekly monitor sheet was also prepared to follow up each of the investigator's work. This sheet includes separate column for each field investigator under which the researcher has to enter how many male and female data they have collected and entered in each age group. Review meetings were conducted on every 15 days to monitor the administrator's competence in performance, feedback and to discuss their difficulties in the community.

From the information collected during pilot study, the areas for data collection were selected. The field investigators explored each street thoroughly regarding the socio-economic status, the educational background and occupations of each group. The areas chosen included mixed community. Population distribution of the selected locality was collected from the BBMP ward office Random table list was used to choose the sample. The field investigators were suggested to ask all the questions directly to avoid the bias and to keep objectivity. During the initial phase, there were many rejections (in the form of no time to do, not interested, will do next time, it's unnecessary etc) from the participants. The plan was to approach them once again and to explain the need for the study. Few members participated during this second approach when they are convinced with the need of the study. At least 3 attempts were made to develop contact with the residents before they were considered as dropout.

Age-wise classification carried out: - After each month, the monitor sheets as well as the data sheets were reviewed. Based on that, the age-wise split-up were carried out for each month's data.

The classification of age group are as follows: 18-20;21-25;26-30;31-35;36-40;41-45;46-50;51-55;56-60;61-65. The minimum number of individuals in each age group was 60.

Focus group discussions were organized with residents to get detailed picture about the study:

One month after completion of data collection, the researchers conducted focus group discussions with the selected members who had already participated in the survey. The participants were randomly selected after getting their verbal consent. Informed consent was read to each of the participant based on their willingness for involvement. 4 focus groups were organized in different resident areas. Homogeneity was maintained on these groups in gender and economic class (2 male groups, 2 female groups; one upper middle class group and one lower class group in each gender). The preset open ended questions targeting few areas of the study prepared based on objectives of this survey were discussed and their responses were noted. The discussion mainly focused on the awareness and knowledge regarding the concept of

addiction and mainly behavioral addiction, their prevalence, burden, impact and knowledge on different treatment methods, prevention strategies, and finally feedback regarding the survey and focus group discussion. Opinions favoring and rejecting the concepts were raised in these discussions. The documented reports were also taken for qualitative analysis.

Additional focus group discussions were also planned after the analysis of the present study to provide public awareness regarding behavioral addictions.

Research Staff experiences

The investigators of the study gave orientation to the research staff regarding the nature of the study, areas to be chosen, need for meeting community officials and also regarding tool preparation. The research staff gained knowledge in supervisory skills, conducting focus group discussions and tool construction.

The field investigators were given guidance regarding the pattern of study, area chosen and etiquettes to be followed. They were enthusiastic and appreciated the concept and methodology for the study. In the implementation phase, they reported difficulties in conducting door to door survey, repeatedly approaching the client (thrice) before considering it as rejection, daily reporting, maintaining the monitor sheet, regular meetings, preparing the participants for the study, taking help from society leaderships. The major challenge which troubled the field investigators was overcoming the barriers to conduct door to door survey.

Even then, the research staff was punctual and responsible in their duties assigned. Positive aspects of the study reported by them include the recognition they got from the participants, interactions in group meetings, meeting parks during lunch time where they could give awareness regarding behavioral addictions to some of the area residents. They were able to give preliminary counseling and few referrals to hospital regarding various mental health problems of the people.

Statistical Analysis:

Data was analyzed using SPSS. All the nominal and ordinal measure was analyzed using the suitable statistical procedure such as frequency, percentage. Interval & ratio scale measure was analyzed using descriptive statistics along with 95% confidence intervals will be used to express data. Comparative analysis was carried out by Pearson correlation coefficient, Subgroup analysis; ANOVA & Chi square were also carried out. Relationship between sociodemographic

variables and behavioral addiction and other psychiatric morbidity will be analyzed by Chi square test for categorical variables and t test/ANOVA for continuous variables.

Ethical Information:

- Confidentiality of information is maintained
- The subjects informed about the research and procedures.
- Participants were given the option of dropping out from the study at any point of time
- Psychological help was given to subjects who ask for it and individuals requiring health care would be appropriately referred to the nearby health facility.

9.2 RESULTS

2755 subjects were taken for the exploration of behavioral addictions from the urban localities of East Bangalore (Austintown, Neelasandra, BDA, Yerappa Garden, Vivek Nagar, Vannarpet & Ejjipura).

9.2.1 SECTION A - SOCIO-DEMOGRAPHIC PROFILE

AGE

36.48 years is the mean age of the sample, S.D is 12.999. The maximum percentage of sample is in age range of 18-20 years.

GENDER

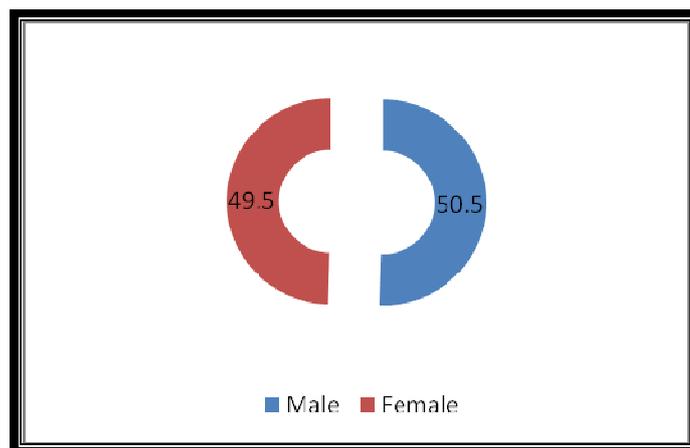


Figure A-1 indicating the distribution of age among the sample

50.5% of the participants were males, 49.5% of them were females (Figure A-1).

RELIGION

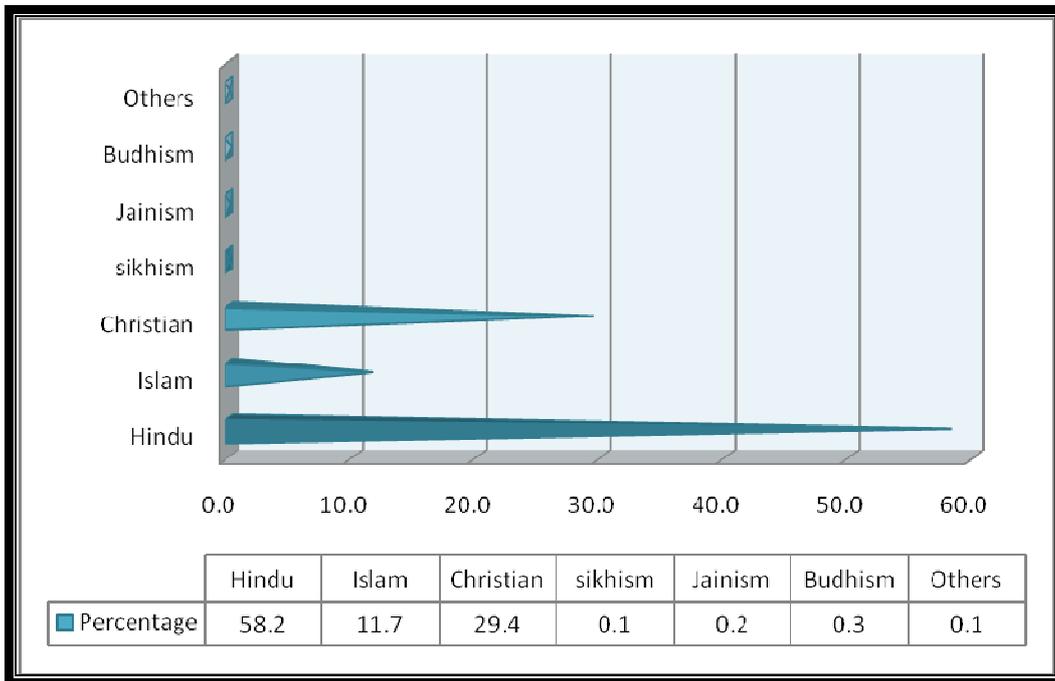


Figure A-2 indicating the distribution of religion among the sample

58.2 % of them belong to Hindu’s, 11.7% of them were Muslims, 29.4% were Christians and 0.7% was belongs to other religions (Figure A-2).

MARITAL STATUS

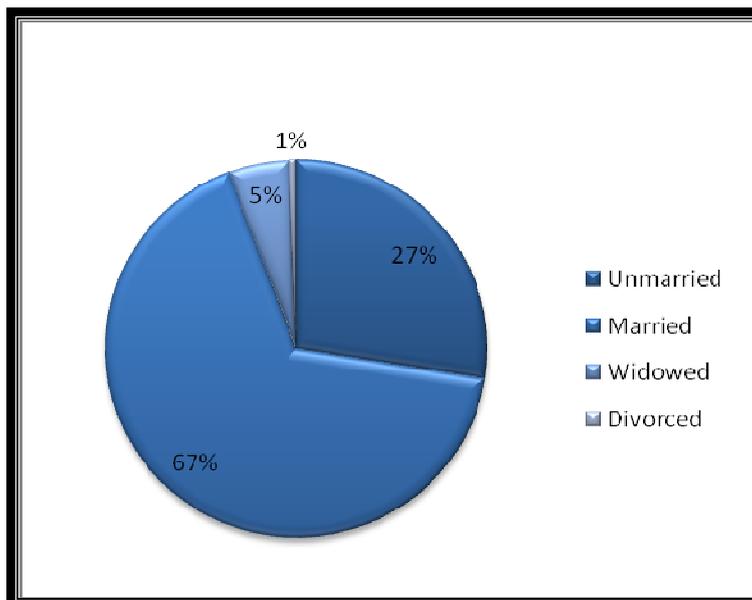


Figure A-3 indicating the distribution of marital status among the sample

7.5% of the sample was single; 66.7% were married, 5.1% were widowed & divorced or separated category constitutes 0.6%. Among the married members, 10.452 is the mean for years of marriage with SD of 11.67854.

EDUCATION

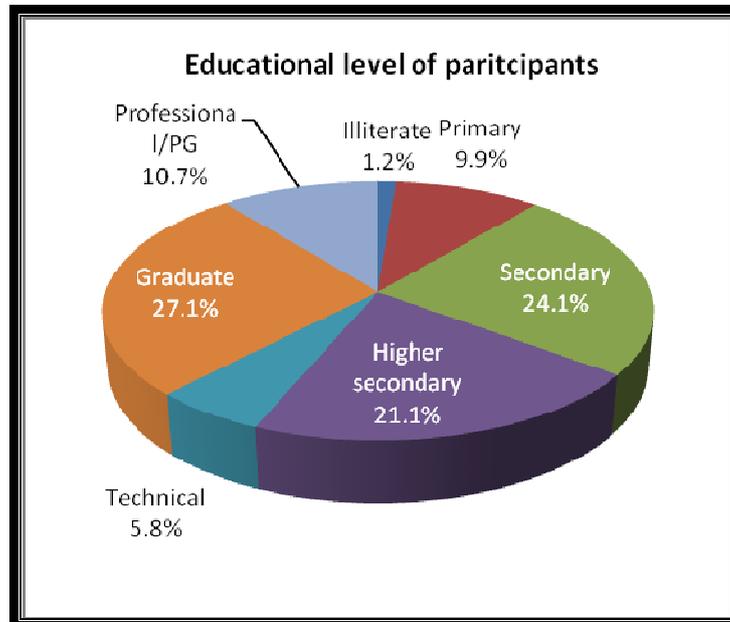


Figure A-4 indicating the distribution of educational level among the sample

Among the sample, 27.1% were graduates, 10.7% were postgraduates, 24.1% were secondary education, 21.1% were having higher secondary/PU education and 9.9% were primary educational background. 5.8% of the sample were having technical/ITI education, whereas 1.2% were illiterate.

FAMILY STATUS & NUMBER OF MEMBERS IN THE HOUSE HOLD

70.1% of the sample belongs to nuclear family, 22.7% comes from Joint family. 5.1% of the sample studied were single and among the sample, 2% belongs to single parenting families.

27.7% (N=761) of the sample reported that there are 4 members in the household; 22.1% (N=608) have 2 members in their house and for 21.9% (N=601) of the sample, 3 members are there in their house. 13.5% participants belong to 5 member families. The percentage of sample reported with 6 or more members were 10%.

MONTHLY INCOME

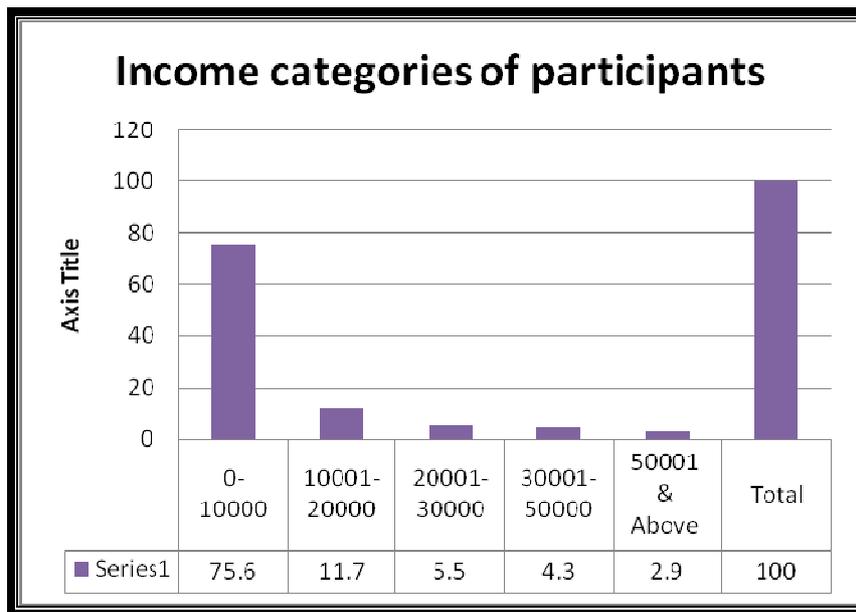


Figure A-5 indicating the distribution of income among the sample

The mean income of the total survey sample is Rs. 8,403.27 and SD is 20,135.488. Their income ranges from up to 60,000 rupees. The percentage of people belongs to different income category are illustrated in table given above. 75.6% of participants belongs to up to 10000 category, and 11.7% comes under 10001-20000 group. 2.9% of the participants reported that they belong to income category of 50001 & above.

All the participants of the survey have electricity as the primary source of energy for lighting, and only 10 participants belongs to the Below poverty Lane category.(BPL card issued by the Hon. central government of India). The mean duration of their stay in the locality where the survey was conducted was 165.8729 months (13, 82 years) and SD was 164.66360. The range of stay in their locality varies from 6 months to 62 years.

There was a question for the survey to rate the participant's happiness subjectively. Out of the total survey sample, 88.8% of the participants reported that they are happy or very happy (62.9% +25.9%), where 1.4% reported that they are unhappy(1.2%+0.2%).8.9% of the survey sample reported the middle option (neither happy nor unhappy) and 0.9% (N=24) did not responded to this question as they said "don't know".

OCCUPATION

Table A -1 showing occupation categories of the participants

Occupation	Frequency	Percentage
Professionals	259	9.4
Semi-professionals	610	22.2
Skilled workers	328	11.9
Semi-skilled workers	38	1.4
Unskilled workers	34	1.2
Unemployed	36	1.3
Retired	120	4.4
Housewives	1,002	36.4
Students	313	11.4
Others	10	0.4
Total	2,755	100.0

The table indicates the frequency and percentage of people engaged in different occupations (total of 2755). 36.4 % of the total participants were housewives, 22.2% of the sample were semiprofessionals (teacher, pharmacist, social worker, smallscale, businessmen, nurse, govt. employers etc). 11.4% were students. 9.4% of the total sample were professionals which includes doctors, engineers, lawyers, military officers, scientists, writers, professors, police officers etc. Other occupations coded in this category include skilled workers (clerk, artisan, supervisor, tailor, mechanic, salesman, receptionist etc), retired and unemployed.

SPOUSE OCCUPATION

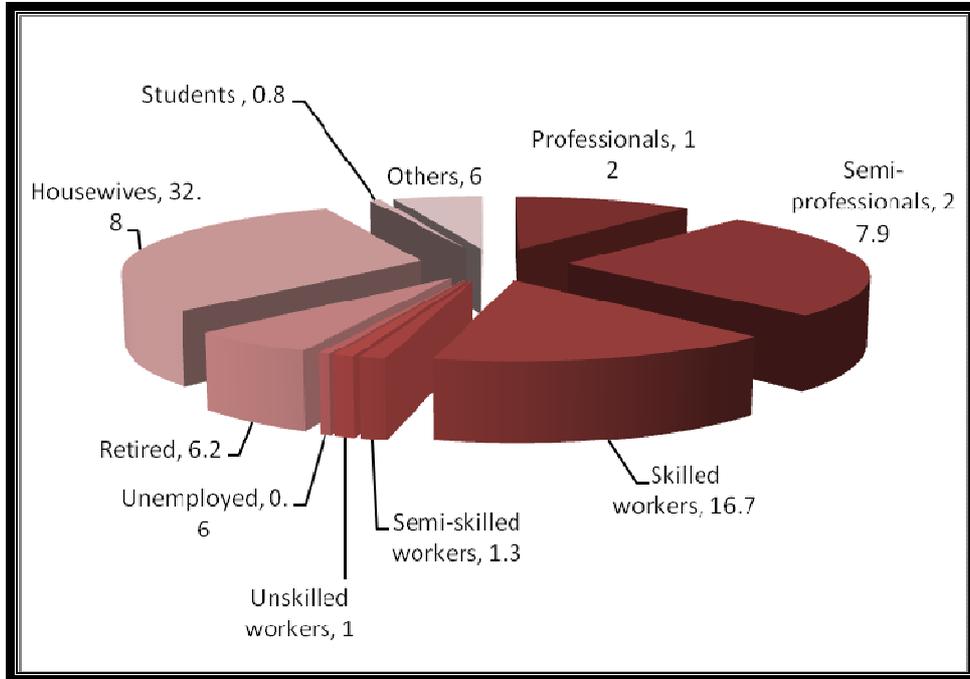


Figure-A-6 showing occupations of spouses of the participants

From the figure, 65.8% of the spouses of the participants reported different occupations. Among them, 27% were semiprofessionals, 12% were professionals, & 16.7% were skilled workers. 32.8% of the spouses of total sample were unemployed also.

LOAN TAKEN

Table A-2 showing percentage of people taken loans and police case for them

Sl. No	Items	Yes percentage	No percentage
1.	Loan taken	16.3	83.7
2.	Loan taken for alcohol related purpose	16.8	83.2
3.	Police case	0.4	99.6
4.	Police case related to alcohol related issues	0.1	99.9

16.8 % of the people reported that they have taken loan for alcohol related purposes, 16.3 % of participants reported that they have taken loans for different purposes which includes housing, vehicle, marriage purpose, purchasing equipments, shopping, etc. Out of the total sample studied, 0.4% reported police case against them, and 0.1 reported that it was because of alcohol related issues.

GENERAL HEALTH CONDITION

Table A-3 showing percentage of people reported significant health distress.

Sl. No	Items	Percentage
1	Normal health condition without significant distress	82.3
2	Significant distress	17.7

Among the total sample, 82.3% reported that their general health condition was good and 17.7% reported significant distress in their general physical health.

9.2.2 SECTION B – PREVALENCE, MAGNITUDE & BURDEN OF BEHAVIORAL ADDICTION

Pattern of behavioral addiction reported by the participants

Table B-1 Showing frequency of behavioral addiction with significant difference

Sl. No	Items	Frequency	Percentage
1	Work addiction	267/2755	9.7
2	Internet addiction	36/2755	1.3
3	Eating addiction	45/2755	1.6
4	Shopping addiction	109/2755	4
5	Sex addiction	5/2755	.2
6	Cell phone addiction	111/2755	4.1
7	T V addiction	79/2755	2.9

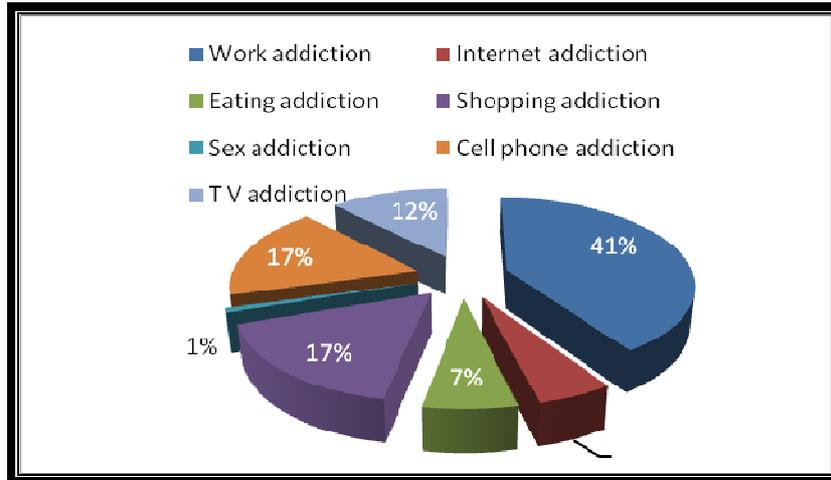


Figure-B-1– Showing percentage of addiction among the participants.

Figure and table indicates the prevalence of behavioral addictions in the community sample.

Table B-2- Showing frequency of exercise addiction

Exercise addiction Score range	Participants doing exercise regularly	Frequency	Percentage
0-12	1743	647	37.119
13-23		1094	62.765
24-30		102	5.85

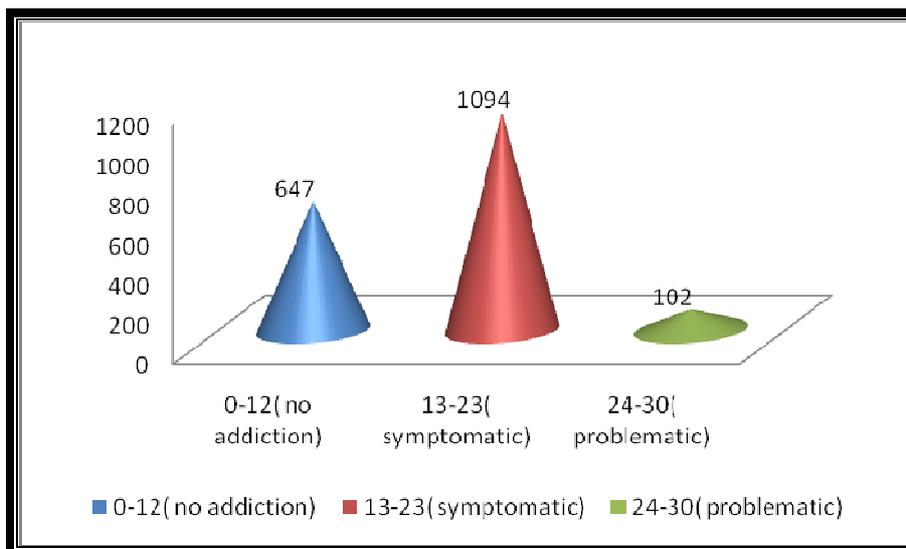


Figure B-2 Indicates frequency of exercise addiction among the population

For gambling addiction, only 37 participants reported that they had involved in gambling at least once in their lifetime. The overall percentage of gambling addiction is 1.2%.

Table B-3 Showing frequency of gambling addiction

Gambling addiction Questions	Frequency	Overall Percentage of gambling addiction
Do you involve yourself in gambling?	37	1.2%
Participants answered both of the following question	30	
Have you ever felt the need to bet more and more money?	16	
Have you ever had to lie to people important to you about how much you gambled?	15	
Participants answered any one of the 2 questions	16	

Behavioral Addictions have been observed with 1.3% for Internet(2% males&0.6% females) ; Shopping (4%)(male-3.2% & female-4.8%); cell phone(4.1%- 5% males& 3.1% females);Eating (1.6%); Television(2.9%; 3.3%male,2.4% female);work (9.7%; 10.5% males & 8.9% females); Sex(.2%)(0.3% male&0.1% female); .

1051 participants reported that they are using face book as a social network media with a mean of 20.48.

For exercise addiction, 1743 participants reported that they are doing exercise regularly. Out of which 102 participants come under problematic exercise addiction (5.8%) (7.5% males & 3.8 females), 1094 individuals belong to symptomatic group (63%) and 647(37%) includes in normal exercise group).

The percentage of gambling addiction is 1.2 %.

Socio-Demographic Profile of Behavioral Addiction

Gender

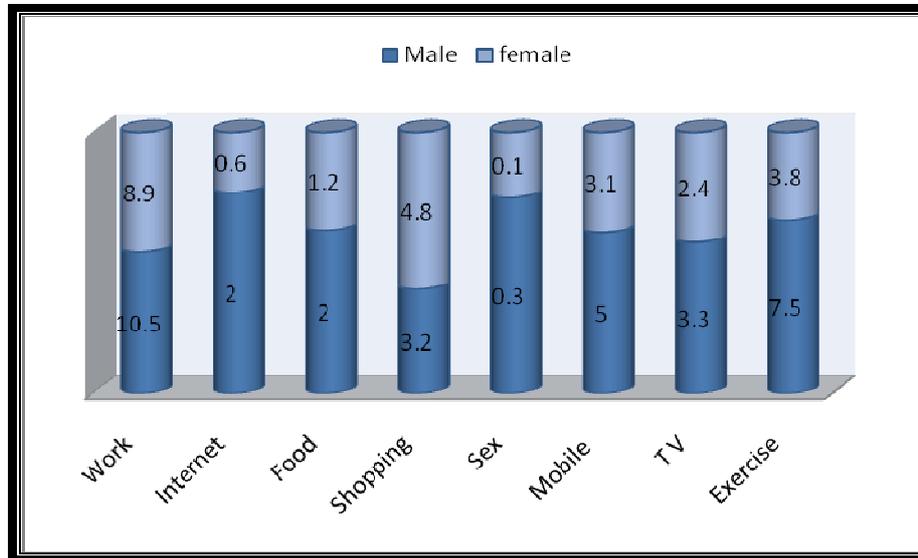


Figure B-3 showing distribution of gender among participants who reported different behavioral addictions

From the Figure-B-3, it is clear that 9.7% (267) people are having work addiction (10.5% are males & 8.9% females). 1.3% are having internet addiction (2% males & 0.6% females); 1.6% reported to have food addiction (2% male & 1.2% female); 4% reported to have shopping addiction (male-3.2% & female-4.8%); 0.2% reported to have sex addiction (0.3% male & 0.1% female). 111 people reported to have cell phone (4.1% - 5% males & 3.1% females). 2.9% reported that they have television addiction (3.3% male, 2.4% female). For exercise addiction, 5.9% (N=102) reported with 7.5% males & 3.8% females).

Table B-4 Relationship of pattern of Behavioral addiction activities among subjects belong to gender

Variables	Female			Male			F	Sig.
	Std. Deviation	Mean	N	Std. Deviation	Mean	N		
Age	13.646	36.97	1,363	12.255	36.49	1392	3.717	0.054
Years of marriage	11.5701	11.8924	1,363	11.6186	10.4559	1392	41.425	0.00
GHQ-total	1.17	0.74	1,363	1.338	0.68	1392	6.046	0.014
MMS-A total	1.457	1.15	1,363	1.656	1.03	1392	8.608	0.003
MMS-total	3.333	3.02	1,363	3.594	2.8	1392	10.653	0.001
Eating addiction	2.895	1.26	1,363	2.458	1.52	1392	24.536	0.00
Sex addiction	1.469	0.23	1,363	0.941	0.35	1392	26.373	0.00
Mobile phone addiction	3.757	1.25	1,363	2.96	1.74	1392	56.47	0.00
Internet addiction	2.884	0.57	1,363	1.848	1.02	1392	91.669	0.00
Facebook addiction	10.482	7.18	1,363	8.325	9.78	1392	203.94	0.00
Exercise addiction	8.714	8.49	1,363	8.262	9.77	1392	61.37	0.00
Monthly expense for Mobile phone	684.253	287.79	1,157	352.464	392.27	1392	79.098	0.00

There is significant difference among males and females with respect to age, years of marriage, health aspects, eating addiction, sex addiction, mobile addiction, internet addiction, face book addiction, exercise addiction and monthly expense with P values at 0.001 level. While comparing the means, males are having high mean scores than females for these addictions.

Marital status & Behavioral Addictions

Table-B-5 indicates the association between marital status and behavioral addictions

Addictions	Total		Marital Status								Sig. Diff
			Unmarried		Married		Widowed		Divorced		
	N	%	N	%	N	%	N	%	N	%	
Work	267/2755	9.7	71/758	9.4	184/1836	10	11/141	7.8	1/17	5.9	
Internet	36/2755	1.3	25/758	3.3	10/1836	0.5	1/141	0.7	0	0	0.000
Food	45/2755	1.6	24/758	3.2	20/1836	1.1	1/141	0.7	0	0	
Shopping	109/2755	4	41/758	5.8	65/1836	3.5	3/141	2.1	0	0	0.073
Sex	5/2755	0.2	3/758	0.4	2/1836	0.1	0	0	0	0	0.434
Mobile	110/2754	4	69/758	9.1	37/1836	2	2/141	1.4	2/17	11.8	0.000
T V	79/2755	2.9	33/758	4.4	38/1836	2.1	4/141	28	4/17	23.5	0.000
Exercise	102/1743	5.9	49/545	9	43/1102	3.9	8/82	9.8	2/9	2.2	0.000

While considering the marital status, among 267 people reported work addiction, 71 out of 758 unmarried (9.4% of), 184/1836(10%) married, 11/141 widowed (7.8%) and 1/17divorced (5.9%) reported work addiction. For internet addiction, 25/758(3.3%) people were unmarried and are having internet addiction, and 10/1836(0.5%) were married. 1/141 widow was also reported to have internet addiction (0.7%).

3.2% (24/758) of unmarried participants reported eating addiction and 1.1% of eating addiction people were married. 1 widow was also reported to have eating addiction. (0.7%). 41 unmarried individuals (5.8%) reported shopping addiction, 65 married participants were having shopping addiction (3.5%), and three were widowed in this shopping addiction category (2.1%). For sex addiction, 0.4% were unmarried, 0.1% were married.

9.1% (69) of unmarried participants were having mobile phone addiction, 2% were married and having mobile addiction, and 1.4% widows and 11.8% divorcees were also reported to have mobile phone addiction.

For television addiction, 4.4% were unmarried, and 2.1 % were married. 4 widowers & 4 divorcees were also reported to have television addiction.

9% of unmarried people reported having exercise addiction, 3.9% of married people reported to have exercise addiction and 9.8% and 2.2% of widowers & divorcees were also reported exercise addiction.

For internet addiction, food addiction, shopping addiction & sex addiction & face book addiction , the pattern of percentage of participants among different marital status were: Unmarried > Married > Widowed > Divorced. (Significant at 0.001 level).

For work addiction, the pattern is: Married > Unmarried > Widowed > Divorced.

For mobile addiction, the pattern is Divorced > Unmarried > Married > Widowed. (Significant at 0.001 level).

For TV addiction, the pattern is: Widowed > Divorced > unmarried > Married (significant at 0.001 level).

For eating addiction the pattern of distribution of marital status is: Widowed > unmarried > married > Divorced. (Significant at 0.001 level).

Family Status & Behavioral Addiction

Table B-6 indicates the association between family status and addictions

Addictions	Total		Family Status							
			Nuclear		Single		Joint		Single parenting	
	N	%	N	%	N	%	N	%	N	%
Work	267	9.7	176/1929	9.1	8/140	5.7	78/625	12.5	5/56	8.9
Internet	36	1.3	25/1929	1.3	3/140	2.1	7/625	1.1	1/56	1.8
Food	45	1.6	30/1929	1.6	4/140	2.9	9/625	1.4	2/56	3.6
Shopping	109	4	69/1929	3.6	3/140	2.1	32/625	5.1	5/56	8.9
Sex	5	0.2	3/1929	0.2	1/140	0.7	1/625	0.2	0	0
Mobile	110	4	81/1929	4.2	6/140	4.3	23/625	3.7	0	0
T V	79	2.9	53/1929	2.7	5/140	3.6	18/625	2.9	3/56	5.4
Exercise	102	5.9	68/1220	5.6	10/114	8.8	22/369	6	2/33	6.1

9.1% of work addicted people belongs to nuclear family, 12.5% in joint families and 8.9% belongs to families with single parenting. For shopping addiction, 8.9% belongs to single parenting families where as 5.1% are from joint families. Among 1.3 % of internet addicted people, 2.1% were married, 1. Single and single parenting families have more tendencies towards exercise addiction (6.1%& 8.8% respectively).

For work addiction, the pattern of percentage distribution of family status is: Joint > Nuclear > Single > Single parenting.

For Internet addiction, the pattern is Single > Nuclear > Single Parenting > Joint. (Significant at 0.001 levels).

For food addiction, the pattern is Single Parenting > Single > Nuclear > Joint

For Shopping addiction, pattern is Single parenting > Joint > Nuclear > Single.

Sex addiction: - Single > Nuclear=Joint.

Mobile addiction, Single > Nuclear > Joint

TV addiction:-Single parenting > Single > Joint > Nuclear.

Facebook addiction: - Nuclear > Single > Single parenting > Joint. (Significant at 0.001 levels).

Exercise addiction:-Single > Single parenting > Joint > Nuclear. (Significant at 0.001 levels).

Relationship pattern of behavioral addictions and other variables with various family statuses

Table B-7 Relationship pattern of behavioral addictions and other variables with various family status

	Family Status										
	Nuclear		Single		Joint		Single Parenting		Total		
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	N	F	Sig
GHQ total	0.66	1.215	0.8	1.364	1.63	1.959	0.68	1.258	2755	14.1	0.000
MMS-A total	1.18	1.702	1.12	1.61	1.88	1.991	1.03	1.563	2755	7.761	0.000
MMS total	3.16	3.974	2.87	3.582	4.73	4.945	2.8	3.472	2755	7.045	0.000
Internet addiction	2.31	3.456	0.99	2.359	1.36	2.799	1.02	2.468	2755	14.2	0.000
Facebook addiction	17.64	10.689	8.24	8.844	9.36	10.199	9.78	9.821	2755	36.43	0.000
Exercise addiction	13.22	8.057	8.72	8.383	9.46	8.979	9.76	8.591	2755	10.88	0.000

Religion & behavioral addictions

Table-B-8 indicates the association between religion and addictions

Addictions	Total		Religion													
			Hindu		Islam		Christian		Sikhism		Buddhism		Jainism		Others	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Work	267/2755	9.7	166/1604	10.3	25/323	7.7	75/809	9.3	0	0	1/5	20	0	0	0	0
Internet	36/2755	1.3	19/1604	1.2	2/323	0.6	14/809	1.7	0	0	0	0	1/8	12.5	0	0
Food	45/2755	1.6	30/1604	1.9	3/323	0.9	12/809	1.5	0	0	0	0	0	0	0	0
Shopping	109/2755	4	48/1604	3	17/323	5.3	43/809	5.3	0	0	0	0	1/8	12.5	0	0
Sex	5/2755	0.2	2/1604	0.1	1/323	0.3	2/809	0.2	0	0	0	0	0	0	0	0
Mobile	110/2755	4	57/1604	3.6	10/323	3.1	43/809	5.3	0	0	0	0	0	0	1/3	33
T V	79/2755	2.9	54/1604	3.4	5/323	1.5	19/809	2.3	1/2	50	0	0	0	0	0	0
Exercise	58/1743	5.9	14/980	6.1	30/228	5.8	30/520	5.8	0	0	0	0	0	0	0	0

Table: B-9 Relationship pattern of Behavioral addictions & other variables among subjects belong to various religious groups

Religion		Age	Number of members	Shopping addiction	Facebook addiction
Hindu N=1604	mean	36.18	3.57	2.31	9.26
	SD	12.7	1.5	3.412	9.842
Islam N=323	mean	34.9	3.79	3.23	10.28

	SD	13.02	1.643	3.926	9.799
Christian N=809	mean	37.82	3.61	2.94	10.55
	SD	13.46	1.559	3.85	9.697
Sikhism N=2	mean	38	2.5	0	0
	SD	2.828	0.707	0	0
Jainism N=5	mean	34	3.6	3.2	6.4
	SD	10.7	1.517	3.962	6.693
Buddhism N=8	mean	32.75	2	3.13	18.38
	SD	12.02	1.069	4.518	11.916
Others N=3	mean	31	5	3.67	16
	SD	12.12	1	3.512	7.55
Total N=2754	mean	36.49	3.6	2.61	9.78
	SD	12.98	1.537	3.626	9.819
F		2.619	2.901	4.784	3.379
Sig		0.016	0.008	0	0.003

The F value for shopping addiction is 4.784 and its P value of .000 shows that there is a significant difference among the shopping addiction scores in different religions groups. Similarly, the F-value (3.379) for face book addiction score for different religious groups again indicates (.003) difference among the different religious groups.

Table B-10 indicating the correlation of different variables-socio-demographic & Behavioral Addictions

Variables		Work	eating	shopping	sex	mobile	TV	internet	face book	exercise
Age	Pearson Correlation	0.038(*)	-0.201(**)	-0.227(**)	-0.134(**)	-0.257(**)	-0.147(**)	-0.261(**)	-0.427(**)	-0.079(**)
	Sig. (2-tailed)	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755
Duration of stay	Pearson Correlation	.059(**)		-.052(**)				-.061(**)	-.170(**)	
	Sig. (2-tailed)	0.002		0.007				0.001	0.000	
	N	2,755		2,755				2,755	2,755	
Years of marriage	Pearson Correlation		-.176(**)	-.183(**)	-.131(**)	-.231(**)	-.131(**)	-.254(**)	-.399(**)	-.095(**)
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N		2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755
Number of members in house	Pearson Correlation	.052(**)		.110(**)		.059(**)	.086(**)		-.102(**)	-.059(**)
	Sig. (2-tailed)	0.007		0.000		0.002	0.000		0.000	0.002
	N	2,755		2,755		2,755	2,755		2,755	2,755

**Correlation is significant at 0.01 level(2 tailed), * Correlation is significant at 0.05 level(2-tailed)

From the correlation result it is clear that age is positively correlated to work addiction where as age has significant negative correlation with all the other mentioned addictions (eating, shopping, sex, mobile, internet, TV, exercise, facebook). This indicates that as age increases, the tendency towards addiction to work also increases, whereas as age increases, other addictions are found to be decreased.

As duration of stay increase, the tendency for work addiction was also found to be increased, which is significantly correlated. But the duration of stay in a particular area has significant negative correlation with shopping addiction, internet addiction and facebook addiction. It indicates that as the duration of stay in particular area increases, the tendency towards shopping, internet and facebook use has found to be reduced.

Number of years of marriage has significant negative correlation towards eating addiction, shopping addiction, sex addiction, mobile phone, television, internet, and facebook & exercise addictions. As the number of years of marriage increases, the chances for addiction towards eating, shopping, sex, mobile, TV, internet, facebook and exercise are found to be decreased.

Number of members in the house has significant positive correlation towards work, shopping, television and mobile phone addiction where as it has negative correlation towards face book and exercise addiction. This indicates that as the number of members' in house increases, the tendency towards more work, shopping, television and using mobile phone increases whereas the chances for facebook addiction and exercise addiction are likely to be decreased when there are more members at home.

9.2.3 SECTION – C - IMPACT OF BEHAVIORAL ADDICTION

Co- morbidity

Association between general health aspects and work addiction

Table C-1 indicates association between behavioral addictions and health aspects

Number	Variable	Health Aspects		Total	Sig level
	Addictions	Distress-Absent	Distress present		
1	Work addiction present	9.1%(206)	12.8%(62)	9.7%(268/2755)	0.018
	Absent	90.9%(2063)	87.2%(424)	90.3%(2487)	
2	Eating addiction-present	3.7% (18)	1.2% (27)	1.6% (45/2755)	.000
	Absent	98.8%(2242)	96.3%(468)	98.4%(2710)	
3	Shopping- present	3.6%(81)	5.8%(28)	4%(109/2755)	.020
	Absent	96.4%(2188)	94.2%(458)	96%(2646)	
4	Sex – present	0.2%(5)	0	0.2%(5/2755)	.379
	Absent	99.8%(2264)	100%(486)	99.8%(2750)	
5	Mobile phone –present	3.5% (79)	6.8% (33)	4.1% (112/2755)	.001
	Absent	96.5%(2190)	93.2%(453)	95.9%(2653)	
6	TV-present	2.3% (53)	5.3% (26)	2.9% (79/2755)	.001

	Absent	97.7%(2216)	94.7%(460)	97.1%(2676)	
7	Internet –present	1.3%(30)	1.2%(6)	1.3%(36/2755)	.545
	Absent	98.7%(2239)	98.8%(480)	98.7%(2719)	
8	Exercise-problematic	5.6%(82)	7.4%(20)	5.9%(102/1743)	.127
	Symptomatic	63.8%(933)	57.6%(156)	62.8%(1094)	
	Absent	30.6%(450)	35.1%(95)	31.3%(545)	

From the table, significant findings have been observed for the relationship between eating, mobile and television addiction with physical distress

Correlation of behavioral addictions and general health conditions

Table C-2 indicating correlation of behavioral addictions and general health conditions.

Variables	Column1	Work	Eating	Shopping	Sex	Mobile	TV	Internet	Face book	Exercise
GHQ Total	Pearson Correlation	.076(**)	.068(**)	.047(*)	.047(*)	.085(**)	.135(**)	0.021	-.067(**)	-.077(**)
	Sig. (2-tailed)	0	0	0.014	0.014	0	0	0.281	0	0
	N	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755
MMS-A	Pearson Correlation	.114(**)	.085(**)	.079(**)	.095(**)	.138(**)	.179(**)	.066(**)	-0.026	0.027

Total	Sig. (2-tailed)	0	0	0	0	0	0	0.001	0.173	0.158
	N	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755
MMS-B Total	Pearson Correlation	.137(**)	.157(**)	.138(**)	.133(**)	.190(**)	.234(**)	.160(**)	0.004	-0.001
	Sig. (2-tailed)	0	0	0	0	0	0	0	0.832	0.962
	N	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755
MMS-C Total	Pearson Correlation	.089(**)	.216(**)	.176(**)	.159(**)	.214(**)	.232(**)	.197(**)	.102(**)	.041(*)
	Sig. (2-tailed)	0	0	0	0	0	0	0	0	0.031
	N	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755
MMS TOTAL	Pearson Correlation	.147(**)	.173(**)	.151(**)	.152(**)	.215(**)	.262(**)	.162(**)	0.014	0.021
	Sig. (2-tailed)	0	0	0	0	0	0	0	0.471	0.27
	N	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755	2,755

From the correlation table, it is clear that the general health score is significantly positively correlated to work addiction, eating addiction, shopping addiction, sex addiction, mobile phone addiction, television and internet addiction. Face book and exercise addiction are found to be significantly negatively correlated to GHQ scores. This means, as the general health scores increases the addiction scores for work, eating , shopping, sex, mobile phone use and television use were also increased and as GHQ scores increases, the tendency for face book and exercise addiction decreases.

With the psychological health aspects the mood disturbance subscale scores shows a significant positive correlation with addictions of work, eating, shopping, mobile phone, television and internet. As the scores for mood disturbance subscale increases, the scores for above mentioned addictions were also increases and vice versa.

Significant positive correlation was found between the anxiety subscale of psychological health screener and addictions for work, eating, shopping, sex, mobile phone, television and internet. As the anxiety scores increases, the addiction scores also found to be increased.

For psychosis subscale, significant positive correlation was obtained with addictions of work, eating, shopping, sex, mobile, television, internet, facebook and exercise. That means, as the psychosis subscale score increase, there increases the chance for different addictions.

For the overall psychological health score, significant positive correlation was found with work, eating, shopping, sex, and mobile phone, television and internet addictions.

Psychiatric-comorbidity

Table-C-3 indicates association between other behavioral addictions and gambling

No.	Addictions	Gambling Absent	Gambling Present	Significant level
1	Work addiction present 9.7% (268/2755)	9.7%(265)	12.5%(2/16)	.861
	Absent-90.3% (2487)	90.3%(2459)	87.5%(14/16)	
2	Eating addiction-present 1.6% (45/2755)	1.5% (41)	18.8% (3/16)	.000
	Absent -98.4% (2710)	98.5%(2683)	81.3%(13/16)	
3	Shopping- present 4% (109/2755)	4%(109)	0	.524
	Absent 96% (2646)	96%(2615)	100%(16)	
4	Sex – present. 2% (5/2755)	.2%(5)	0	.972
	Absent -99.8% (2750)	99.8%(2719)	100%(16)	
5	Mobile phone –present 4.1% (112/2755)	4%(108)	6.3%(1/16)	.007
	Absent -95.9% (2643)	96.6%92616)	93.8%(15/16)	
6	TV-present 2.9% (79/2755)	2.8% (75)	12.5% (2/16)	.003
	Absent- 97.1% (2676)	97.2% (2649)	87.5% (14/16)	
7	Internet –present 1.3% (36/2755)	1.3%(35)	0	.168
	Absent-98.7%(2719)	98.7%(2689)	100%(16/16)	
8	Exercise-problematic 5.9% (102/1743)	5,7%(97)	21.4%(3/16)	.029
	Symptomatic 62.8% (1094)	62.7%(1074)	71.4%(10/16)	
	Absent -31.3% (545)	31.6%(541)	7.1%(1/16)	

18.8% of subjects with eating addiction have psychiatric co-morbidity of gambling; 12.5% of television addicts have associated problematic gambling (both are statistically significant).

Experience of psychosocial problems

Table C-4 indicating the percentage of experience of psychosocial problems

Sl. No	Situations	No	%
1	Difficulty in buying ration	6	.2
2	Not able to buy medicines	4	.1
3	Not paid rent, Bills of household consumption	9	.4
4	Not paid school fees	5	.2
5	Not getting any entertainments (TV/Movies/Music/Sports.)	6	.2
6	Missed social functions	11	.4
7	Cancelled trips/tours/visits	13	.5
8	Physical abuse with others	7	.2
9	Fights with creditors	5	.1
10	Complaints from neighbors	7	.3
11	Disturbance in sexual relationship/ <i>if unmarried</i> , any sexual problems	5	.2
12	Verbal fights with spouse/family members	18	.7
13	Physical fights with spouse/family members	9	.3
14	<i>(D1 to D3 Not applicable if unmarried)</i> Verbal/physical abuse towards children	3	.1
15	In difficulty as there was not enough money for things needed by them.	3	.9
16	These activity/habit has negatively affected children	5	.1
17	Not satisfied with your work performance	10	.4
18	Problems with colleagues	7	.3
19	Irregular at work / frequent absenteeism	9	.3
20	Not getting exact salary	8	.3

The table indicates the frequency and percentage of participants who reported problems related to different situations. The participants reported that many times they are faced with these difficulties, with/with out any behavioral addictions.

Treatment seeking behavior

Among the total sample, 11 participants (.4%) reported that they had taken psychiatric/psychological help for different reasons but are not related to behavioral addiction.

Participants expression of need to change

The following figure indicates the percentage of participants express the need to change the behavioral addiction activates.

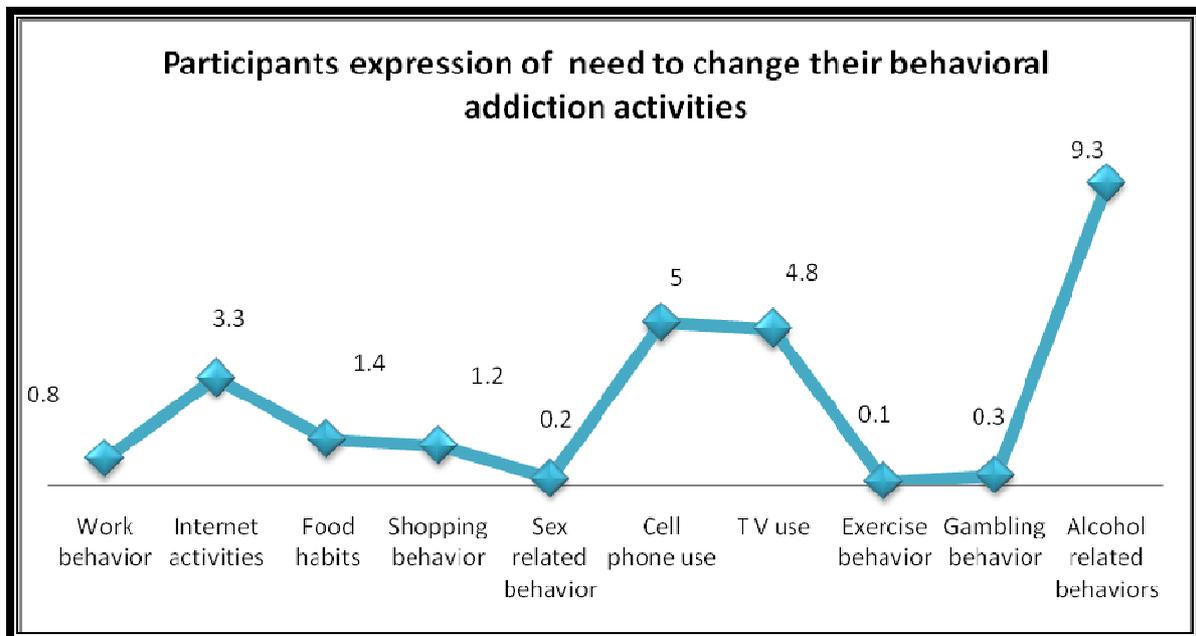


Figure-C-1 showing percentage of people reported need for change in their various activities.

From the above table, 9.3% of people reported they want to change their alcohol related behaviors. 4, 8% people reported that they want to change their TV use and also internet activities (3.3%).

Expression of modification of monthly expenses

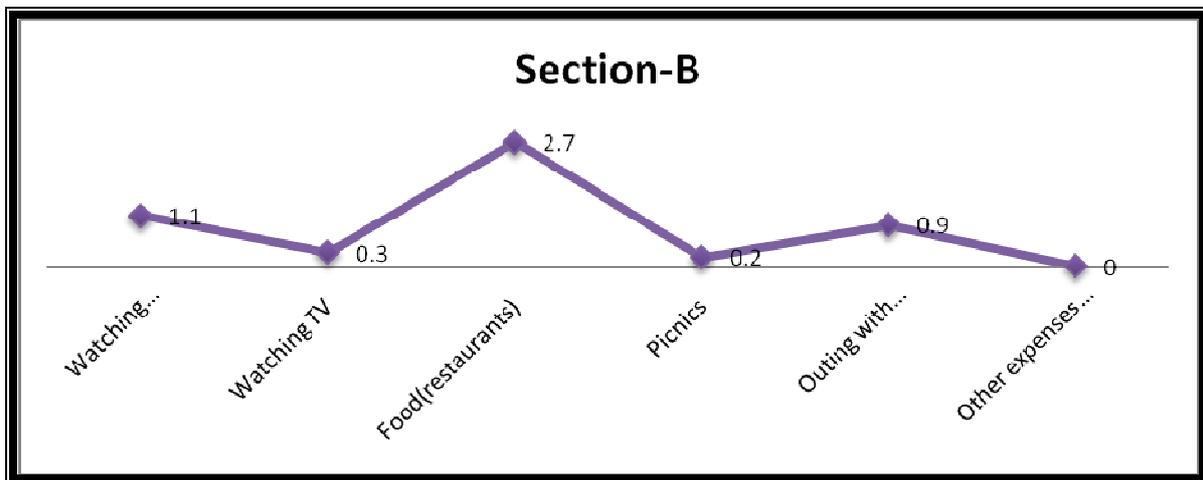
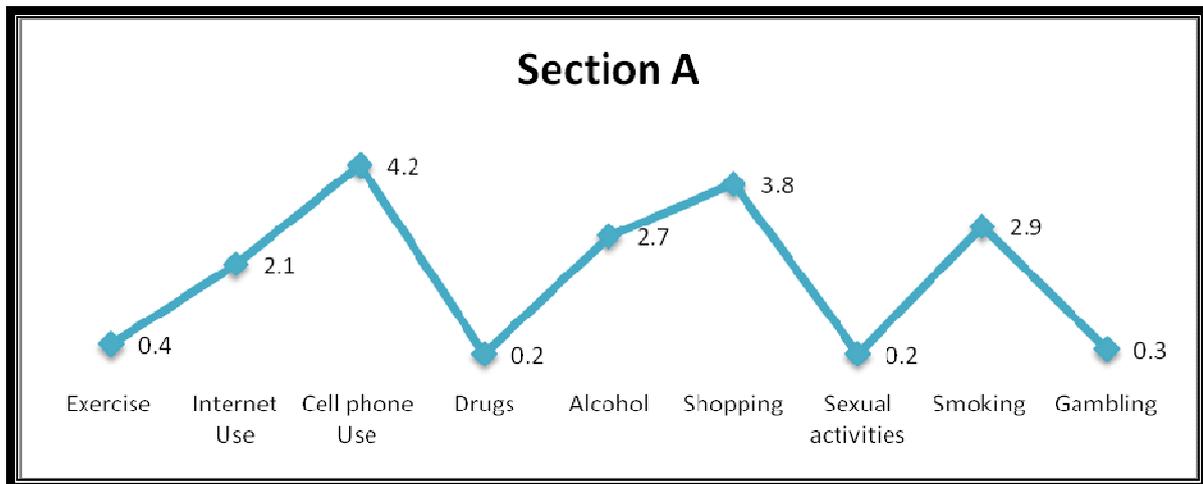


Figure C-2 (section A & section B) indicating participants expression of modification in their monthly expenses for different behavioral addiction activities.

4.2% of the participants reported that they need to modify their monthly expenses for cell phone use, 3.8% reported modification is needed in their shopping expenses and 2.9% wants to reduce their smoking expenses. Among expenses for entertainments, 2.7% reported need to change their expenses for eating outside.

The table indicates that 2.1% of participants were not satisfied with their expenditure for internet activities which they want to modify. Similarly for shopping, smoking and alcohol. 2% are concerned about their outside food expense.

From the figures, it is clear that for exercise and shopping and gambling, though addiction is reported high, few expressed the need to modify their expenses for that, but those who want to change their related activities are very less. The reason behind this could be cultural differences or acceptance of these behaviors as positive. For internet, cell phone and television the self report of need to change is comparatively higher than reported addiction and modification needed in monthly internet expenses. This could be attributed to the emerging awareness regarding these technology addictions. For sexual behaviors, equal percentage for addiction, need for change and need to modify expense noted. Eating addiction is reported and more people prefer to modify their eating expenses. For alcohol, drugs, smoking, entertainments and other expenses also, though addiction is not studied, people expressed their need to modify monthly expenses for this.

9.3 FOCUS GROUP DISCUSSION REPORT

For the aims of the study to be achieved, it was determined that focus groups would be conducted within the same population to obtain information regarding their knowledge and attitudes about behavioral addiction. The information gathered in these focus groups is to be used as a basis for the development of key messages. It also will serve as a determinant of the information that must be addressed in the educational efforts and the types of materials that are most likely to be beneficial.

Focus Group Instrument Development

The questions for the focus group were developed by discussions with mental health professionals. The areas includes defining addiction; the prevalence of addiction in that locality, Reasons/ causes for addiction; impact and awareness on treatment strategies.

Site selection

Four areas were selected for conducting focus group meetings. These areas were chosen based on their cooperative participation for data collection and different socio-economic status. The areas chosen for focus group discussions were Austin town-2nd square; Anglo Indian Colony, Vannarpet and Nesaan Street.

Participant Recruitment

Participants were recruited by the researcher based on conformation for their survey participation and willingness. One person in each group was approached initially to get information about the other participants. The selected people were contacted and asked to provide a list of clients or patients who could serve as potential focus group participants.

Focus Groups

Four focus groups were conducted at the four sites on 2 convenient dates of July month,2013.

The details of the focus group are as follows:

Date	Location	Participants	Number
<i>3/07/13</i>	<i>Austion town-2nd square</i>	<i>Men</i>	<i>8</i>
<i>3/07/13</i>	<i>Angloindian colony</i>	<i>Men</i>	<i>7</i>
<i>5/07/13</i>	<i>Vannarpet</i>	<i>Female</i>	<i>7</i>
<i>5/07/13</i>	<i>Nesaan Street.</i>	<i>Female</i>	<i>8</i>

The groups were deliberately arranged to be gender specific.

All focus groups were conducted in their local language of Kannada and Tamil and lasted approximately 45 hours. Each focus group discussion was tape recorded and later transcribed.

DEMOGRAPHICS

Thirty people participated in the focus groups. Of this number, 50 percent were female and 50 percent were male. The focus group participants ranged in age from 23 to 65years.

Employment

Majority of the participants did not work outside the home, or housewives or retired employees. Of those participants who did work, the nature of job included parking attendant, construction worker, food preparer, gardening helper, and driver.

Income

Family monthly income ranged from Rs. 4500 to Rs.20000.

Education

The number of years of schooling completed ranged from 1 to 17 years.

Marital Status and Number of Children

Majority of the participants were married, few were single. 2 participants were widowed.

Focus Group Discussion Response Sheet

The participants were generally quite responsive when answering "What do you know about addiction?" Very few people hesitated or chose not to answer. Several of the men, however, began their response by saying, "drinking alcohol....which is a social issue" and then gave their opinion. It was often a very detailed opinion.

The format used for focus group discussion and their responses are mentioned as follows:

Focus Group Discussion – Data

How is addiction defined?

GROUPS	MALE	FEMALE
GROUP I	Use of drugs, brown sugar, alcohol, gambling. If the person is not able to control his problems, it can be mention as addiction. They will be having problems at home.	Mainly using drinks, alcohol, smoking, ganja, - due to which they experience Family issues, Sleep problems all are considered as addiction. TV, shopping, Overeating cannot be considered as bad addictions.
GROUP II	Whitener, Inhaler, photography, pets, cybersex also can be considered as addiction. Loss of control and excessive need for using them means addiction.	A bad habit that affects one’s life is known as addiction. It includes any behavior. It mainly includes alcohol and smoking.

1. If yes, is it found in this locality?

GROUPS	MALE	FEMALE
GROUP I	Yes, Mainly, Alcohol and smoking Drugs, injections, shopping not seen. Over eating, TV and playing cards were not common in their community. Internet and mobile addiction common.	Yes, Alcohol and smoking mainly. TV, shopping, food addictions were also present. Remaining addictions, not aware of in that area. But heard about it generally.
GROUP II	Yes, alcohol, smoking, mobile and internet addiction. Other addictions are not reporting in the community.	Yes, know about alcohol & smoking, taking tablets. Mobile and internet not heard as present in that area. TV+ Shopping+ Food present among females.

2. Out of 100 people how many would have such addiction (approximate numbers)

GROUPS	MALE	FEMALE
GROUP I	Alcohol and smoking- 99%,80%. Internet and mobile- 70% Drugs-75%	Alcohol & smoking – 99% TV,shopping,food- 80% Mobile & internet- 75% Remaining addictions- not aware of the percentage.
GROUP II	Alcohol& smoking-80% Internet&mobile-80% Other addictions don't know.	Alcohol/smoking - 95% 25% of small children are also involved 80% - mobile use issues

3. Who are generally affected / involved genders wise, age group wise or any other characteristics

GROUPS	MALE	FEMALE
GROUP I	Alcohol, smoking-mainly among males(20-60)yrs Internet, mobile-equally present in adolescent boys & girls. Drugs-college going boys. TV- all age females and senior citizens. Other addictions, not known.	Alcohol & smoking- males TV, shopping, food- females Mobile & internet- both gender children.
GROUP II	Alcohol, smoking, internet and mobile-mainly adolescents& youngsters-males. Not sure.	Boys & adult males up to 50 years of age are using alcohol/smoking. Irrespective of gender, youngsters are addicted to mobile phone use. TV & shopping habits are there for all females, can't consider it as addiction (mainly unemployed, housewives).

4. What could be the reasons for such addictions?

GROUPS	MALE	FEMALE
GROUP I	<p>Unemployment(100% reported)</p> <p>Financial crisis(37.5%reported)</p> <p>Family issues(62.5% reported)</p> <p>Peer influence (25% reported)</p> <p>Cultural differences (12.5% reported)</p>	<p>No job (63% reported)</p> <p>Peer influence(88 % reported)</p> <p>For entertainment (13% reported)</p> <p>Because of family problems(13 % reported)</p>
GROUP II	<p>Environment (25% reported)</p> <p>Surroundings (100 % reported)</p> <p>Peer influence (25% reported)</p> <p>Idle mind (12.5% reported)</p> <p>Unemployment (88% reported)</p>	<p>No job (63% reported)</p> <p>Friend's influence (88 % reported)</p> <p>Easy availability(13 % reported)</p>

5. How much money do you think one would spend for such addictions?

GROUPS	MALE	FEMALE
GROUP I	<p>5000pm (38% reported)</p> <p>If the person gets 100/day, he spent 85 for these behaviors and remaining to family.(80 % reported)</p> <p>This cannot be answered because it depends upon the financial condition of the person. (37 % reported)</p>	<p>If 5000pm the person gets, he will spent 4500 for these behaviors, remaining 500 only spent for family which is not sufficient and there starts problems in family. (13 % reported)</p>
GROUP II	<p>Depends upon the financial condition of the person and availability of the addictive substance/product. (80 % reported)</p>	<p>If 10,000 pm, the person will use 8500 pm for these habits, remaining amount for his family.(80 % reported)</p>

6. What would be the impact on Physical Health?

GROUPS	MALE	FEMALE
GROUP I	<p>Nerve weakness (88 % reported).</p> <p>Brain problems (13 % reported)</p> <p>Laziness (13% reported)</p> <p>Drowsy (10 % reported)</p> <p>Unfit health</p> <p>Jaundice</p> <p>Liver problems due to alcohol</p> <p>Heart problems</p> <p>Death</p>	<p>Hearing problem due to mobile phone.(13% reported)</p> <p>Eye –vision problems – internet, TV & alcohol</p> <p>Heart issues-Alcohol.</p> <p>Become unconscious-Alcohol.(88 % reported).</p>
GROUP II	<p>Laziness, Drowsiness, weakness</p> <p>Mobile phone is having poor impact on persons attention.(10 % reported)</p>	<p>Road accidents due to mobile phone use</p> <p>Liver problems due to alcohol.</p> <p>Death (87% reported)</p>

7. What would be the impact on Psychological Health?

GROUPS	MALE	FEMALE
GROUP I	<p>Mind/psychiatric problems</p> <p>Memory problems</p> <p>One person reported his disagreement on the concept that behaviors like TV/shopping can cause psychological problems.</p>	<p>Family problems</p> <p>Don't know</p>
GROUP II	<p>Psychological problems /impact is only for alcohol related issues.</p> <p>For other behaviors, its not having any psychological impact.</p>	<p>Psychiatric problems</p> <p>Become unconscious</p>

8. What would be the impact on Social wellbeing / nuisance factor in the community?

GROUPS	MALE	FEMALE
GROUP I	Interpersonal problems Unemployment problems People are not bothered about society.	Conflict at home Robbery is increasing in society Accident rate is increasing because of alcohol and mobile.
GROUP II	Economic crisis Family crisis Social togetherness will be affected.	Robbery is increasing Neighborhood-interpersonal conflicts Family conflicts

9. How can we overcome this problem?

GROUPS	MALE	FEMALE
GROUP I	Yoga Rehabilitation Faith & worship Good family support. Counseling/ medicines will only helpful for alcohol/smoking For the other habits, attention should be diverted to other activities.	Counseling Prayer Meditation Medicines are not found to be effective for alcohol or any addictive behaviors God only can save them.
GROUP II	Strict parenting for internet, mobile, TV issues. Policy makers should plan something. Counseling is not found to be effective. Equal division of money among people should be implemented. Youth awareness should be implemented.	Because of easy availability, people are using it, so government should take measures to restrict the availability. Counseling is found to be effective only for few numbers of people. Medicine is not good for addictions; it is only needed if there are any physical complications due to addictions.

10. Please tell me about your opinion and feedback regarding this research survey and focus group discussion.

GROUPS	MALE	FEMALE
GROUP I	<p>Good, helped to know about many other habits that can cause addiction in society.</p> <p>This need to be conducted among college students.</p>	<p>Helpful to know about help lines</p> <p>Got awareness regarding the programmes.</p> <p>Need classes in their area</p>
GROUP II	<p>Effective, divine work.</p>	<p>Detailed class is required.</p> <p>Happy to know that these types of research is going in NIMHANS</p> <p>How it is going to help, don't know.</p> <p>Usually they did not get any help. So not confident about the study outcome.</p>

9.4 COMMUNITY DATA COLLECTION AT GLANCE







10 Detailed analysis of results indicating contributions made towards increasing the state of knowledge in the subject.

10.1 DISCUSSION

10.1.1 SECTION-A- SOCIO DEMOGRAPHIC PROFILE

36.48 years is the mean age of the sample (S.D is 12.999). 50.5% of them were males, 49.5% of them were females (**Figure A-1**). 58.2 % of them belong to Hindu's, 11.7% of them were Muslims, 29.4% were Christians and 0.7% was belongs to other religions (**Figure A-2**). 7.5% of the sample was single; 66.7% were married, 5.1% were widowed & divorced or separated category constitutes 0.6%. Among the married members, 10.452 is the mean for years of marriage with SD of 11.67854. (**Figure A-3**). Among the sample, 27.1% were graduates, 10.7% were postgraduates, 24.1% were secondary education, 21.1% were having higher secondary/PU education and 9.9 % were primary educational background. 5.8% of the sample were having technical/ITI education, where as 1.2% were illiterate. (**Figure A-4**). Regarding occupation, 36.4 % of the total participants were housewives, 22.2% of the sample were semiprofessionals (teacher, pharmacist, social worker, small-scale, businessmen, nurse, govt.employers etc). 11.4% were students. 9.4% of the total sample were professionals which includes doctors, engineers, lawyers, military officers, scientists, writers, professors, police officers etc. Other occupations coded in this category includes skilled workers (clerk, artisian, supervisor, tailor, mechanic, salesman, receptionist etc), retired and unemployed. (**Table-A-1**) 65.8% of the spouses of the participants reported different occupations. Among them, 27% were semiprofessionals, 12% were professionals, & 16.7% were skilled workers. 32.8% of the spouses of total sample were unemployed also (**Figure A-6**).

70.1% of the sample belongs to nuclear family, 22.7% comes from Joint family. 5.1% of the sample studied were single and among the sample, 2% belongs to single parenting families. 27.7 % (N=761) of the sample reported that there are 4 members in the household; 22.1% (N=608) have 2 members in their house and for 21.9% (N=601) of the sample, 3 members are there in their house. 13.5% participants belong to 5 member families. The percentage of sample reported with 6 or more members were 10%.

The mean income of the total survey sample is Rs. 8,403.27 and SD is 20,135.488. The maximum income among the sample was 60,000 rupees. 75.6% of participants belongs to up to 10000 category, and 11.7% comes under 10001-20000 group. Only 2.9% reported that they belong to income category of 50001 & above (*Figure A-5*). All the participants of the survey have electricity as the primary source of energy for lighting, and only 10 participants belongs to the Below poverty Line category. (BPL card issued by the Hon. central government of India). The mean duration of their stay in the locality where the survey was conducted was 165.8729 months (13, 82 years) and SD was 164.66360. The range of stay in their locality varies from 6 months to 62 years. Out of the total survey sample, 88.8% of the participants reported that they are happy or very happy (62.9% +25.9%), where 1.4% reported that they are unhappy(1.2%+0.2%).8.9% of the survey sample reported the middle option (neither happy nor unhappy) and 0.9% (N=24) did not responded to this question as they said “don’t know”.

16.8 % of the people reported that they have taken loan for alcohol related purposes, 16.3 % of participants reported that they have taken loans for different purposes which includes housing, vehicle, marriage purpose, purchasing equipments, shopping, etc. Out of the total sample studied, 0.4% reported police case against them, and 0.1 reported that it was because of alcohol related issues (*Table A-2*).

Among the total sample, 82.3% reported that their general health condition was good and 17.7% reported significant distress in their general physical health (*Table A-3*).

10.1.2 SECTION B –PATTERN OF BEHAVIORAL ADDICTION

PREVALENCE, MAGNITUDE & BURDEN

Behavioral Addictions have been observed with 1.3% for Internet(2% males&0.6% females) ; Shopping (4%)(male-3.2% & female-4.8%); cell phone(4.1%- 5% males& 3.1% females);Eating (1.6%); Television(2.9%; 3.3%male,2.4% female);work (9.7%; 10.5% males & 8.9% females); Sex(.2%)(0.3% male&0.1% female); 1051 participants reported that they are using face book as a social network media with a mean of 20.48. For exercise addiction, 1743 participants reported that they are doing exercise regularly. Out of which 102 participants come under problematic exercise addiction (5.8%) (7.5% males & 3.8 females), 1094 individuals

(63%) belong to symptomatic group and 647 (37%) includes in normal exercise group). (*Table-B1, Table-B2, Table-B3; Figure B1, Figure B2*).

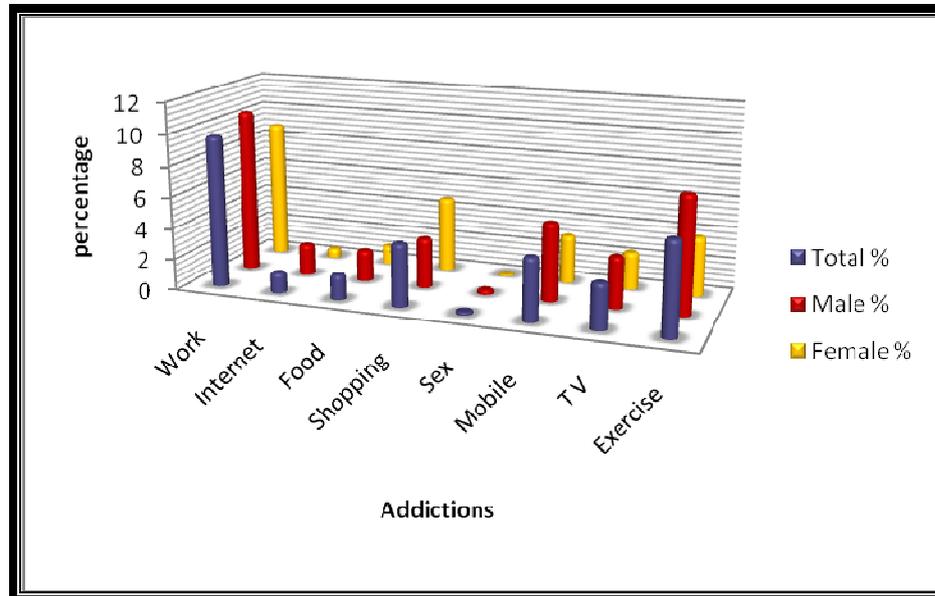


Figure-1 showing percentage prevalence of behavioral addiction (total & gender)

Only 37 participants reported that they had involved in gambling at least once in their lifetime. Out of this, 16 participants were screened for detailed evaluation for gambling addiction. The overall percentage of gambling addiction is 1.2 %.

Internet Addiction

1.3% of the sample was characterized as addicted among the representative survey sample of the Bangalore Urban population ($N=2755$). They reported daily Internet use, excessive online times. (*Table-B1; Figure B1*).

A study among 3,399 Norwegian adults of age-group 16-74 years to assess the prevalence of Internet addiction and at-risk Internet use by the Young Diagnostic Questionnaire (YDQ) reported prevalence of Internet addiction (YDQ score 5-8) as 1.0% and an additional 5.2% were at-risk Internet users (YDQ score 3-4). Internet addiction and at-risk Internet use was strongly dependent on gender and age with highest prevalence among young males (16-29 years 4.1% and 19.0%, 30-39 years 3.3% and 10.7%). (Bakken IJ, Wenzel HG, Göttestam KG, Johansson A, Oren A, 2009).

Cross-sectional study conducted in a sample comprising of 987 students of various faculties across the city of Mumbai using semi structured Performa and The Internet Addiction Test (IAT; Young, 1998) was self-administered by the students after giving them brief instructions. Subjects were classified into moderate users, possible addicts, and addicts for comparison. The findings suggest that of the 987 adolescents who took part in the study about 74.5% were moderate (average) users. Using Young’s original criteria, 0.7% was found to be addicts (Goel D, Subramanyam Alka, Kamath Ravindra, 2013)

24.6% of problematic use of internet with presence of psychological problems was indentified in an Indian study (Sharma&Barathkur, 2012).

In previous studies, the prevalence of internet addiction was reported to be between 1.5% and 8.2% (Peterson 2009). The prevalence of internet addiction was found to be 1.98% in a study made in Norway on 3237 adolescents between 12 and 18 years of age who used and did not use the internet by employing Young’s ‘Diagnostic Questionnaire for Internet Addiction – YDQ’ (Johansson and Götestam 2004).

8.1% pathological internet use was reported in a study carried out in the USA on 277 college students including six participants who had not previously used the internet by employing a ‘Pathological Internet Use Scale – PIUS’ (Morahan-Martin and Schumacher 2000).

Comparison of prevalence of internet addiction across the studies

Table 1 prevalence of internet addiction across different studies

No	Author& year	Sample	Prevalence of internet addiction (%)
1	Present study	N=2755 Age:18-65	1.3%
2	Bakken IJ, Wenzel HG, Götestam KG, Johansson A, Oren A,2009	3,399 Norwegian adults of age-group 16-74 years	1.0%
3	Goel D, Subramanyam Alka, Kamath Ravindra, 2013	987students(Mumbai)	0.7%

4	Sharma&Barathkur,2012	Adolescents(India)	24.6%
5	Johansson and Göttestam 2004.	Norway on 3237 adolescents between 12 and 18 years	1.98%
6	Morahan-Martin and Schumacher 2000	USA on 277 college students	8.1%

The table given above indicates the prevalence of internet addiction across different studies. This indicates that the prevalence of internet addiction ranges between 1% and 24.6 % across different studies and hence an average of 12% overall. . In relation to international prevalence of behavioral addiction, the prevalence rates were found to be comparatively less. This variation in the prevalence rates could be due to cultural differences and most of the studies were done in adolescent sample. Hence detailed study in this aspect can be initiated.

Face book Addiction

1051 participants of the survey sample reported that they are using face book as a social media network, with a mean of 20.48 and SD of 6.61.

5.2% prevalence was reported for facebook addiction in an Indian Study conducted among youngsters of 18-25 age range. (Sharma & Indu, 2013).

The level of social network site addiction among college students in India) was studied and found that nearly half (46%) of the respondents belong to the age group of 18-21 more than half (57%) of the respondents grades are affected in college because of the amount of time they spend for chatting. More than half (55%) of the respondents often stay online longer than they intended. Very few (35%) of the respondents always aware about the consequences of long time chatting in social network the consequences of online chatting (V. Subathra et al (2013).

Shopping Addiction

Among the representative sample, 4% of the sample was found to be addicted to shopping (*Table-B1; Figure B1*).

The prevalence of Compulsive Buyers was found to between 1.8% and 8.1% of the general population, based on results from a mail survey in which the Compulsive Buying Scale

(CBS) was administered to 292 individuals selected to approximate the demographic makeup of the general population of Illinois. (Faber and O’Gu(1992).

Prevalence of compulsive buying behavior in the United States was estimated through a random sample, national household telephone survey in the spring and summer of 2004 and interviewed 2,513 adults. The interviews addressed buying attitudes and behaviors, their consequences, and the respondents’ financial and demographic data. The authors used a clinically validated screening instrument, the Compulsive Buying Scale, to classify respondents as either compulsive buyers or not. The estimated point prevalence of compulsive buying among respondents was 5.8% (Koran L.M et al, 2006).

Prevalence of shopping addiction varied across different studies . 10.7% in Cook’s (1987) college sample, between 12% and 21.8% among younger people (Dittmar, 2005; MacLaren & Best, 2010), though most estimates place it as ranging from 1% to 6% among adults (Faber & O’Guinn, 1992; Freimuth et al., 2008). 7.6%. prevalence estimate was found among German adults(Neuner, Raab, and Reisch (2005). The difference in prevalence rates can be attributed to difference in cultural context.

Comparison of prevalence of shopping addiction across the studies

Table 2 Prevalence of shopping addiction across the studies

No	Author& year	Sample	Prevalence of Shopping addiction (%)
1	Present study	N=2755 Age:18-65	4 %
2	Faber and O’Gu(1992)	292-general population	Between 1.8% and 8.1%
3	Koran L.M et al, 2006	2,513 adults	5.8%
4	Cook’s (1987)	college sample	10.7%
5	Dittmar,2005; MacLaren & Best, 2010	younger people	12% and 21.8%
6	Neuner, Raab, and Reisch (2005)	German adults	7.6%.

The table given above indicates the prevalence of shopping addiction across different studies. This indicates that the prevalence of shopping addiction ranges between 1% and 22 %

across different studies and hence an average of 12% overall. In relation to international prevalence of behavioral addiction, the prevalence rates were found to be comparatively less. This variation in the prevalence rates could be due to cultural differences and most of the studies were done in adolescent sample.

Cell phone addiction

The prevalence of cell-phone addiction is found to be 4% in the present study (*Table-B1; Figure B1*).

The prevalence of possible problematic mobile phone users were estimated in British adolescents in a sample of 1,529 secondary school pupils aged between 11 and 18 years. The prevalence of problematic users among the students was 10%, and the typical problematic user tended to be an adolescent between 11 and 14 years old, studying in a public school, who considered themselves to be an expert user of this technology, who made extensive use of his/her mobile phone, and who attributed the same problem of use among their peers. These users presented notable scores in all the symptoms covered by the scale used to assess problematic use. (Lopez-Fernandez O et al 2011).

The prevalence of mobile phone dependence among resident doctors in India was assessed in a total of 415 resident doctors out of which 192 responded. Eighty two percent of the resident doctors have been using mobile phone for more than five years and 72% of them have been using it for more than an hour every day. Making and receiving calls was the main purpose of use among 90% of the resident doctors, followed by texting and for using Internet services. Nearly forty percent of the participants fulfilled the ICD-10 substance dependence criteria, while 27.1% of the subjects scored two or more on the CAGE questionnaire. 23.4% of the subjects self-rated themselves to be “addicted” to mobile phones (Aggarwal et al, 2002)

Market Analysis and Consumer Research Organization reported that 58% of the respondents participated for their study in Mumbai could not manage without a mobile phone even for a day. (MACRO-2004).

Comparison of prevalence of cell phone addiction across the studies

Table 3 Prevalence of cell phone addiction across the studies

No	Author& year	Sample	Prevalence of Cell phone addiction (%)
1	Present study	N=2755 Age:18-65	4 %
2	Lopez-Fernandez O et al 2011	British adolescents in a sample of 1,529	1.0%
3	Aggarwal et al ,2002	192resident doctors (India)	23.4%

The table given above indicates the prevalence of cell phone addiction across different studies. This indicates that the prevalence of internet addiction ranges between 1 % to 23 % across different studies and hence an average of 12 % overall. This variation in the prevalence rates could be due to cultural differences and most of the studies were done in adolescent sample.

Work Addiction

The present study indicates that 9.7 % of the representative sample are work addicts with a gender wise observation of 10.5 (male) and 8.9 % (female). (*Table-B1; Figure B1*).

31% of working Canadian aged 19-64 years in a study identify themselves as workalcoholic (Keowan, 2007)

Though work addiction is the highest behavioral addiction reported for current survey, while compared to the international study mentioned above, the prevalence rate was less which could be due to cultural differences or the acceptance of doing work as more positive.

Eating Addiction

1.6% of the present sample is suffering from eating addiction. (*Table-B1; Figure B1*).

The prevalence of 'food addiction' was 5.4% (6.7% in females and 3.0% in males) and increased with obesity status among German Newfoundland population. A total of 652 adults

(415 women, 237 men) recruited from the general population were assessed for this. The clinical symptom counts of ‘food addiction’ were positively correlated with all body composition measurements across the entire sample ($p < 0.001$). Obesity measurements were significantly higher in food addicts than controls; Food addicts were 11.7 (kg) heavier, 4.6 BMI units higher, and had 8.2% more body fat and 8.5% more trunk fat. Furthermore, food addicts consumed more calories from fat and protein compared with controls. (Pedram P et al, 2013)

The prevalence rate for eating addiction varies across the studies. 7.4% prevalence was found among a sample of Belgium teenagers (Goossens, Soenens, and Braet (2009) , 6.4% among U.S. college youth (single item used), Cook (1987) , and 14.9% prevalence among 19-year-old Canadian college youth (MacLaren and Best (2010). A prevalence of 3–4% for 24-year-olds was also reported (Lewinsohn, Seeley, Moerk, and Striegel-Moore, 2002).

Comparison of prevalence of eating addiction across the studies

Table 4 Prevalence of eating addiction across the studies

No	Author& year	Sample	Prevalence of eating addiction (%)
1	Present study	N=2755 Age:18-65	1.6 %
2	Pedram P et al , 2013	652 German Newfoundland adults	5.4%
3	Cook (1987)	U.S. college youth	6.4%
4	MacLaren and Best (2010)	19-year-old Canadian college youth	14.9%
5	Lewinsohn, Seeley, Moerk, and Striegel-Moore, 2002	24-year-olds	3–4%

The table given above indicates the prevalence of eating addiction across different studies. This indicates that the prevalence of eating addiction ranges between 1% and 15% across different studies and hence an average of 7.5% overall. . In relation to international prevalence of behavioral addiction, the prevalence rates were found to be comparatively less. This variation in the prevalence rates could be due to cultural differences and most of the studies were done in adolescent sample.

Sex Addiction

For Sex addiction, .2 %of the present study has are found to be addicts. . (*Table-B1; Figure B1*).

Prevalence estimates of 25.9% and 16.8% for love and sex addiction, were reported, among U.S. college youth (Cook, 1987)

11.9% prevalence for relationship submissive/love addiction and 10.3% for sex addition among 948 19-year-old Canadian college youth were reported (MacLaren and Best, 2010).

Among a sample of 240 college students, it was found that 13.5% were at risk for or were sexually addicted (Seegers (2003).

Comparison of prevalence of sex addiction across the studies

Table 5 Prevalence of sex addiction across the studies

No	Author& year	Sample	Prevalence of sex addiction (%)
1	Present study	N=2755Age:18-65	.2 %
2	Cook, 1987)	U.S College youth	10.3%
3	MacLaren and Best, 2010).	948 19-year-old Canadian college youth	6.4%

The table given above indicates the prevalence of sex addiction across different studies. This indicates that the prevalence of sex addiction ranges between 6 % and 10% across different studies. In relation to international prevalence of behavioral addiction, the prevalence rates were found to be comparatively less. This variation in the prevalence rates could be due to cultural differences and most of the studies were done in adolescent sample.

Television Addiction

2.9% of the representative sample was having television addiction. During focus group discussions, it was found that the reason towards television addiction as unemployment and/or for entertainment. Hence these results have to be revisited for further analysis with more standardized measure for assessment. (*Table-B1; Figure B1*).

Exercise addiction

Among the sample studies, it was found that 5.8% have exercise addiction (problematic exercise), and 68.7 % were in at-risk (symptomatic exercise) group. *.(Table-B2;Figure B2).*

Exercise addiction was estimated at being from 3% to 5% of the U.S. population, although large and small sample studies were completed primarily with college youth (Allegre et al., 2006 ;). A few studies of college youth report prevalence as high as 21.8–25.6% (Garman, Hayduk, Crider, & Hodel, 2004; MacLaren & Best, 2010).

Gambling Addiction

The overall Gambling percentage for the present study was found to be 1.2 % (*Table-B3*).

The NORC study, based on a national phone survey supplemented with data from on-site interviews with patrons of gambling establishments, concluded that approximately 1.2 percent of the adult population (approximately 2.5 million people) are “lifetime” pathological gamblers and that 0.6 percent (approximately 1.2 million) were “past year.”

A review of large-scale studies examined adolescent gambling in North America, Europe, and Oceania. The rates of problem/pathological gambling reported in non-North American countries were as follows: Australia, 1–13%; Denmark, 0.8%; Estonia, 3.4%; Finland, 2.3%; Germany, 3%; Great Britain, 2–5.6%; Iceland, 1.9–3%; Italy, 6%; Lithuania, 4–5%; New Zealand, 3.8–13%; Norway, 1.8–3.2%; Romania, 7%; Spain, 0.8–4.6%; and Sweden, 0.9%. This variation may have resulted from the stringency of the instrument used to measure problem gambling, each country’s gambling laws, or subject sampling methods used (Volberg, Gupta, Griffiths, Olason, and Delfabbro , 2010)

Studies have also shown that older adolescents tend to gamble more than their younger counterparts (Welte et al., 2008, Volberg et al., 2008). Gambling involvement was found to be increased with age from 39% in 5th grade to 65% in 7th grade, 80% in 9th grade, and 83% in 11th grade. (Turner et al, 2008a).

Prevalence of 2.4% among college youth Cook (1987), and prevalence of 4–8% among a large sample of college youth in 5 U.S states (Lesieur et al (1991) were reported in previous studies.

Comparison of prevalence gambling addiction across the studies

Table 6 Prevalence of gambling addiction across the studies

No	Author & year	Sample	Prevalence of gambling addiction (%)
1	Present study	N=2755 Age:18-65	1.2%
2	Bakken IJ, Wenzel HG, Götestam KG, Johansson A, Oren A,2009	NORC study Adults	1.2%
3	Cook (1987)	College youth	2.4%
4	Lesieur et al. (1991).	5 U.S. states college youth	4-8%

The table given above indicates the prevalence of gambling addiction across different studies. This indicates that the prevalence of internet addiction ranges between 1% and 8% across different studies and hence an average of 4 % overall. This variation in the prevalence rates could be due to cultural differences and most of the studies were done in adolescent sample.

SOCIO-DEMOGRAPHIC PROFILE OF BEHAVIORAL ADDICTION.

Gender

In the present study, out of the internet addiction percentage (1.3%), 2 percentages were males & 0.6 percentages were females (**Figure-B-3**).

In one study, only three respondents were female students out of a total of 54 Internet addiction cases gleaned from more than 900 Taiwan college student respondents. Regression analysis indicates that gender is one of the predicting factors in Internet addiction, that is, males are more likely than females to become Internet addicts (Chou and Hsiao, 2000).

Dependent Internet users included a significantly larger proportion of men to women (71% men and 29% women, respectively) than the non-dependent users (50% are men and women). (Scherer, 1997).

Males were more likely than females to be pathological users (12% vs. 3%), whereas females were more likely than males to have no symptoms (28% vs. 26%) or have limited symptoms (69% vs. 61%) of behavioral pathology (Morahan-Martin and Schumacker, 2000).

There is no significant gender difference reported in the present study for shopping addiction. But the percentage scores indicates that it is high among females (4.8% than in males (3.2%). **Figure-B-3**).

Estimated prevalence of compulsive buying behavior in the United States through a random sample, was found the prevalence rates as 6.0% for women, 5.5% for men(Koran L.M et al , 2004)

While considering the gender, males are found to be more addicted to mobile addiction (5%), than females (3.9%) (**Figure-B-3**).

A study from United Kingdom on 2163 people revealed that 53% of the subjects tend to be anxious when they lose their mobile phone, run out of battery or credit or have no network coverage. The study found that about 58% of men and 48% of women suffer from the phobia, and an additional 9% feel stressed when their mobile phones are off. About 55% of those surveyed cited keeping in touch with friends or family as the main reason that they got anxious when they could not use their mobile phones (Katharine B, 2008).

Mobile Phone Dependence among 200 Students of a Medical College and Associated Hospital of Central India were observed. In that study, they observed that 19% males and 18% females were found to be nomophobic. The result of the study shows that this disorder is equally prevalent among the study group irrespective of gender (Sanjay Dixit, 2010)

Controversial studies exist which indicate that females may be more likely to develop mobile phone dependency, mobile phone abuse, mobile phone involvement, and mobile phone addiction.

28.6% of all male college students and 56.3% of all female college students are classified as heavy mobile phone users in one study by Jenaro et al. (2007).

There is significant difference among males and females with respect to eating addiction, sex addiction, mobile addiction, internet addiction, face book addiction, exercise addiction and

monthly expense with P values at 0.001 level. While comparing the means, males are having high mean scores than females for these addictions. (*Table -B-4*).

Education

While comparing the means, work addiction, eating addiction, shopping addiction, mobile addiction, internet, facebook and exercise addictions were found to be high among the professionals. Sex addiction was reported to be high among the illiterate group and television addiction was found to be more among people with higher secondary education.

Occupation

Comparison of means indicate that work addiction was found to be high among unskilled workers, followed with professionals. For eating addiction, sex addiction, mobile, internet face book addiction, the mean score was high for students. Television addiction was found to be high among unemployed group. Shopping addiction was high among professionals. Exercise addiction was found to be more among students and professionals.

Religion

Prevalence of the work, television, eating and exercise addictions were found to be more among the Hindus followed with Christians and Islam. Internet behaviors and mobile addiction were found to be more among the Christians. Sex addiction is reported more in Islam. Equal prevalence rate was found for shopping addiction among Christians & Islam. There is a significant difference among different religious groups for shopping addiction (*Table-B-8*).

Marital status & Family status

While considering the marital status, out of the 267 people reported work addiction, 71 were unmarried (9.4% the total unmarried), 184(10%) were married, 11 were widowed (7.8%) and 1 was divorced (5.9%). For internet addiction, 25(3.3%) people were unmarried and are having internet addiction, and 10(0.5%) were married. 1 widow was also reported to have internet addiction (0.7%).

3.2% (24) of unmarried participants reported eating addiction and 1.1% of eating addiction people were married. One widow was also reported to have eating addiction. (0.7%). 41 unmarried individuals (5.8%) reported shopping addiction, 65 married participants were

having shopping addiction (3.5%), and three were widowed in this shopping addiction category (2.1%). For sex addiction, 0.4% were unmarried, 0.1% were married.

9.1% (69) of unmarried participants were having mobile phone addiction, 2% were married and having mobile addiction, and 1.4% widows and 11.8% divorcees were also reported to have mobile phone addiction.

For television addiction, 4.4% were unmarried, and 2.1 % were married. 4 widowers & 4 divorcees were also reported to have television addiction.

9 % of unmarried people reported having exercise addiction, 3.9% of married people reported to have exercise addiction and 9.8% and 2.2% of widowers & divorcees were also reported exercise addiction.

For internet addiction, food addiction, shopping addiction & sex addiction & face book addiction , the pattern of percentage of participants among different marital status were: Unmarried > Married > Widowed > Divorced. (Significant at 0.001 level) and the family status pattern are as follows: Single > Nuclear > Single Parenting > Joint. (Significant at 0.001 levels) (*Table-B-5*).

An empirical study to find the relationship of three issues of age, gender and employment status on internet addiction among 190 men and 160 women from a city of NajafAbad located in province of Esfahan, Iran was conducted and a questionnaire consists of 35 questions are distributed among them, using Chi-Square statistics data was analyzed and the results indicate that internet addiction is more among singles than married (Chi- Square=19.94). The survey also indicates that internet addition is more on men than women (Mohammad R I, et al.)

Internet addiction, food addiction, shopping addiction & sex addiction & face book addiction, the prevalence is more among Unmarried and least among Divorced. For work addiction, the pattern is married to divorce. Mobile, TV and eating addictions were found to be more among the divorced and widowed. (*Table-B-5*).

Cultural and social factors can be attributed to influence the measurement of the prevalence of this addiction.

Statistically significant differences were observed in relation to family status for internet, face book and exercise addictions with more among in Single /Nuclear families. For other behaviors also, it was more among singles and lesser in joint families.

9.1% of work addicted people belongs to nuclear family, 12.5% in joint families and 8.9% belongs to families with single parenting. For shopping addiction, 8.9% belongs to single parenting families where as 5.1% are from joint families. Among 1.3 % of internet addicted people, 2.1% were married, Single and single parenting families have more tendencies towards exercise addiction (6.1% & 8.8% respectively) (*Table-B-6*).

Income

Comparison of means indicate that most of the behavioral addictions were more prevalent among the income group of 50001 and above, where as exercise addiction was found to be more prevalent among income category of 20001 to 30000.

RELATIONSHIP OF DIFFERENT VARIABLES

Duration of the stay in the selected locality is also positively correlated with general health condition and depressive features. This indicates that as the duration of the stay increases, the individuals feel good in their physical health and mood disturbances.

Age is positively correlated to work addiction where as age has significant negative correlation with all the other mentioned addictions (eating, shopping, sex, mobile, internet, TV, exercise, facebook). This indicates that as age increases, the tendency towards addiction to work also increases, whereas as age increases, other addictions are found to be decreased.

Number of years of marriage has significant negative correlation towards eating addiction, shopping addiction, sex addiction, mobile phone, television, internet, and facebook & exercise addictions. As the number of years of marriage increases, the chances for addiction towards eating, shopping, sex, mobile, TV, internet, facebook and exercise are found to be decreased.

Number of members in the house has significant positive correlation towards work, shopping, television and mobile phone addiction where as it has negative correlation towards face book and exercise addiction. This indicates that as the number of members' in house increases, the tendency towards more work, shopping, television and using mobile phone

increases whereas the chances for facebook addiction and exercise addiction are likely to be decreased when there are more members at home.

Age has significant positive correlation with monthly expenditure for exercise, internet usage and shopping related activities where as age is significantly negatively correlated with expenses for mobile phone use, TV use and alcohol usage. That is, as the age increases, the expenditure for exercise activities, internet use and mobile phone use also increases, whereas as among the study sample, as the age increased, the monthly expense for mobile phone use, TV watching and alcohol expenses were decreased.

Number of members at home has significant negative correlation with mobile phone expenses, shopping, TV and outside food expenses. As the members at home increases, the mobile phone expenses, television use and expenses for restaurant eating were decreased.

With respect to education, there is significant difference among different variables of age, duration of stay, number of family members, years of marriage, health aspects(GHQ, MMS), eating addiction, shopping addiction, sex addiction, mobile,internet,facebook and exercise addictions, monthly expenses for internet,mobile,movies,tv and food. This indicates that there is difference in all these variables among different levels of education. (*Tables-B-8, Table-B-9, and Table-B-10*).

10.1.3 Section – C - Impact of behavioral addiction

AGE OF ONSET, GENDER AND CONSEQUENCES AS RISK FACTORS

While considering the age of onset of addictive behaviors, the present study reports Young onset – “ underage” within the age range of 13to 23 for most of the addictions. Male gender is more prone to most of the addictions. Females reported more psychosocial problems than the males. Consequences were also reported from the young age for all these behaviors. Easy availability and accessibility, social acceptance for many of these behaviors and increasing social aspiration value of these behaviors could be a major reason attributing to this.

In NIMHANS study on pattern and consequences of alcohol use in India , the prevalence rate shows that greater proportion of alcohol users remains men; drinking among women is still uncommon and stigmatized, except in households where women are encouraged by spouses and other male figures to drink alongside their men folk.

A study on Substance abuse and associated psychosocial problems among 1259 Argentina adolescents also reported that female adolescents in the school-based sample were found to report higher levels of psychosocial problems and greater use of minor tranquillizers than school boys or boys in treatment for substance abuse. Conduct deviancy was associated with substance abuse problems only in males, while health problems were associated only in females. However, among all youth, substance abuse problems were found to be associated with older age, greater social competency, problems in school performance, and involvement with deviant peers. Familial substance abuse was associated with substance abuse problems among all adolescents, however, the pattern of associations with other psychosocial problems differed between males and females (Moss HB, Bonicatto S, Kirisci L, Girardelli AM, Murrelle L.1998).

CO-MORBIDITY

General physical and psychological health

With respect to the presence of physical distress and behavioral addictions, out of 486 individuals who are screened to have distress in their general physical health, statistically significant results such as 62 individuals (12.8%) have work addiction, 18 have eating addiction (3.7%), 28 have shopping addiction (5.8%), 33 have mobile phone addiction (6.8%) and 26 have television addiction (5.3%) were found. Correlation study shows that the general health distress score is significantly positively correlated to work addiction, eating addiction, shopping addiction, sex addiction, mobile phone addiction, television and internet addiction (*Table-C-1*).

With the psychological health aspects the mood disturbance subscale scores shows a significant positive correlation with addictions of work, eating, shopping, mobile phone, television and internet. Significant positive correlation was found between the anxiety subscale of psychological health screener and addictions for work, eating, shopping, sex, mobile phone, television and internet. For psychosis subscale, significant positive correlation was obtained with addictions of work, eating, shopping, sex, mobile, television, internet, face book and exercise. For the overall psychological health score, significant positive correlation was found with work, eating, shopping, and sex, and mobile phone, television and internet addictions. This indicates that as addiction to different behaviors increases, the chances for psychological disturbances are also getting worsened (*Table-C-2*).

Congruent result was reported in the NIMHANS epidemiological survey on pattern and consequences of alcohol use in India reported sleep problems, presumptive heart problems and injuries. They also reported significantly greater rates of skin problems, jaundice, burning pain in the stomach, joint pains, chronic cough and fever suggestive of tuberculosis or chronic lung infections and other gastro-intestinal problems. Alcohol users were also significantly more likely to suffer poorer psychological well being on a variety of psychological indicators such as inability to enjoy activities, pain in the body, constant strain and losing sleep over worries (Benegal V 2012).

24.6% of problematic internet use with presence of psychological problems were reported in an Indian Study (Sharma & Barathkur, 2012).

Psychiatric co-morbidity

In the current study, 18.8% of subjects with eating addiction are having gambling addiction; 13.5% of television addicts have problematic gambling. Correlation analysis indicates positive correlation for work addiction to eating, shopping, mobile, television, and internet and exercise addiction, eating addiction to shopping, sex, mobile television, internet face book and exercise addiction. Shopping addiction to sex, mobile phone, television, internet, facebook and exercise addiction. Sex addiction is positively correlated with mobile, television, internet face book and exercise addiction. Mobile phone addiction is positively correlated to television, internet, and facebook and exercise addiction. Television addiction is correlated positively with internet and face book addictions. Internet addiction has positive correlation with face book and internet addiction. Face book addiction is significantly positively correlated with exercise addiction (*Table-C-3*).

Along with cell phone dependence, there may be psychiatric co morbidity (anxiety, ringxiety, depression, nomophobia, insomnia, headache, dizziness, decline in quality of life) or physical sequelae (hearing loss, eye strain, digital thumb, allergic contact dermatitis etc) or behavioral comorbidity (internet addiction, sex addiction, pathological gambling, playing with different identities, and projections and dissociation without consequences in real life, hyperpersonal communication in the form of chats and online games etc.). (Bhatia MS, Sharma V, Chhabra V, 2008).

Nearly 60% of subjects with Compulsive Buying Disorder met criteria for at least one

Axis II disorder. While there was no special “shopping” personality, the most frequently identified personality disorders were the obsessive-compulsive (22%), avoidant (15%), and borderline (15%) types in a study conducted by Schlosser et al (1994).

86% of those diagnosed as having internet addiction had also another DSM-IV diagnosis and pointing out that an average of 1.5 additional diagnoses were found per person per study he said the problem became increasingly complicated in co morbid diseases (Block 2008).

A study to assess self-perceived effects of increasing cell phone usage on the well-being of college going students using a self-administered, pre-tested questionnaire which included aspects related to few common adverse mental and physical health symptoms attributed to cell phone usage among 459 students indicates that almost all the subjects (96.1%) possessed cell phones, and used the device for a greater part of the day. Headache was found to be the commonest symptom (51.47%) followed by irritability/anger (50.79%). Other common mental symptoms included lack of concentration and poor academic performance, insomnia, anxiety etc.

Among physical symptoms –body aches (32.19%), eye strain (36.51%), digital thumb (13.8%) and accidents due to car driving with phone were found to be frequent.(Acharya P.J , Acharya I and Waghrey D (2013).

PSYCHOSOCIAL PROBLEMS

The participants were asked to report the frequency of being in such situations and whether this is due to any addictive behaviors. While considering the overall participation and percentage of addiction, only few participants reported that they have such difficulties. But as the consequences are adverse, these difficulties have of great concern. The difficult situations noted in the questionnaire involves difficulty in buying ration, not able to buy medicines, not paid bills, rent, school fees, not getting any entertainments, missed or cancelled social functions or trips, physical or verbal abuse with others, fights with creditors, complaints from neighbors, physical or verbal abuse with spouse, family members or children, not able to meet children’s needs, children are affected by the addictive behavior, not satisfied with work, irregular at work, problems with colleagues and not getting exact salary.

The most commonly reported problems include verbal abuse with spouse or family members, cancelled trips, and missed social functions, not satisfied with work performance and

nonpayment of rent or bills. The participants reported that many of these difficult situations they are facing mainly because of alcoholism, substance use or smoking and then followed by mobile phone overuse, internet or television use, facebook use , sex addiction and gambling. Less response for difficulties in relation to shopping, eating and exercise addiction could be attributed to the lack of awareness regarding the consequences and the acceptance of these behaviors as pleasurable and positive (*Table-C-4 & Figure-2*).

Congruent result was reported in the NIMHANS epidemiological survey on pattern and consequences of alcohol use in India. Thus the consequences reported in this study ranged from physical and emotional violence & injury, monetary loss, failure to live up to responsibilities, social embarrassment and physical deprivation and health problems. Harm on others including family members, children and at workplace were also reported in this study. (Benegal. V, 2012).

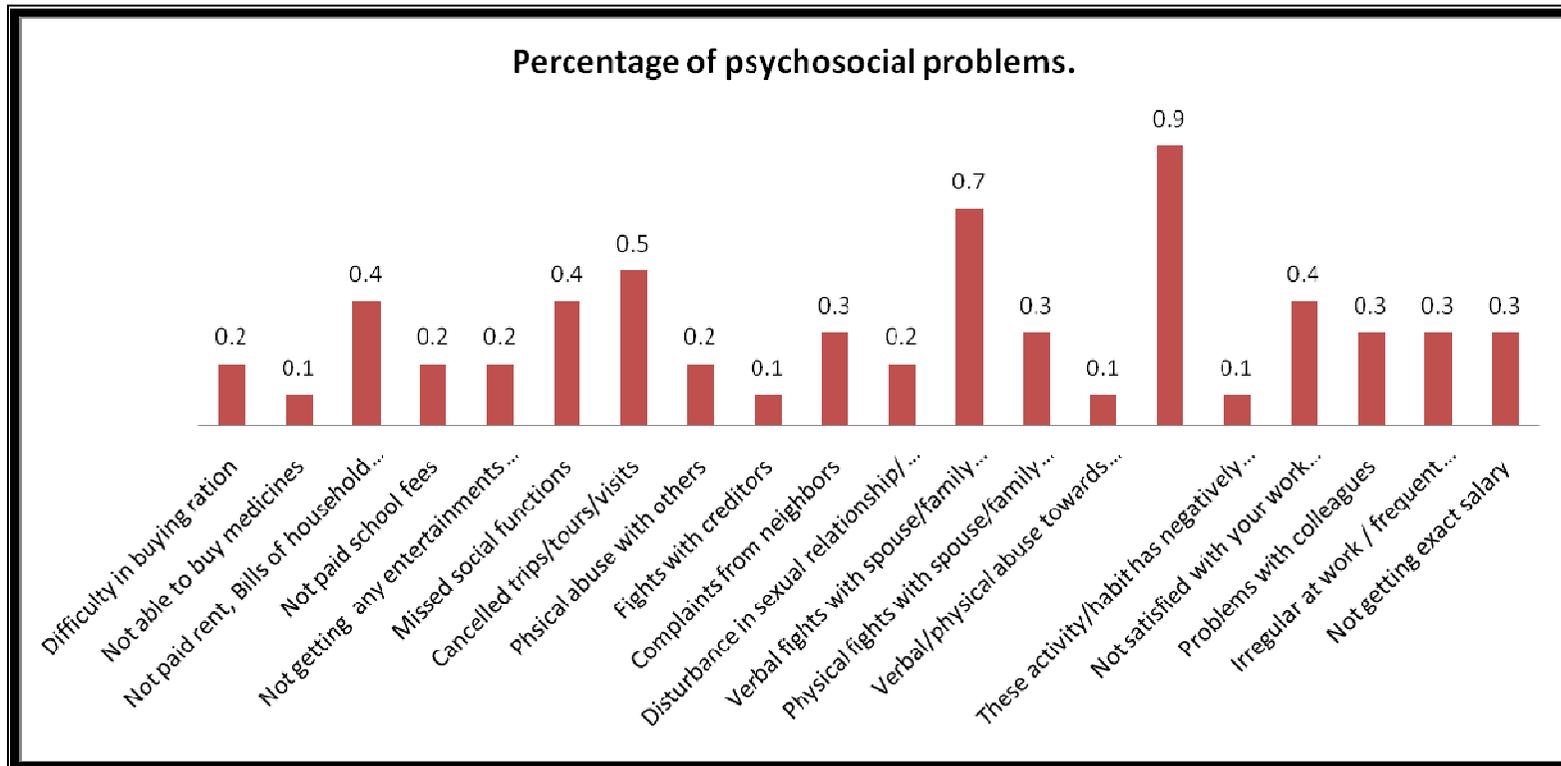


Figure-2- The bar diagram illustrates the frequency of individuals reported different psychosocial difficulties

TREATMENT SEEKING BEHAVIOR

Among the total sample, 11 participants (.4%) reported that they had taken psychiatric/psychological help for different reasons but have not taken help for behavioral addictions.

The participants reported that many times they are faced with various given difficulties, with/with- out any behavioral addictions.

In focus group discussions, though the participants recognized behavioral addiction problems, treatment strategies in the form of professional help were not recognized as a need.

EXPRESSION OF CHANGE

9.3% of people reported they want to change their alcohol related behaviors. 5% wants to change cell phone use, 4.8% people reported that they want to change their TV use and also internet activities (3.3%) (*Figure-C-1*).

4.2% of the participants reported that they need to modify their monthly expenses for cell phone use, 3.8% reported modification is needed in their shopping expenses and 2.9% wants to reduce their smoking expenses. Among expenses for entertainments, 2.7% reported need to change their expenses for eating outside. 2.1% of participants were not satisfied with their expenditure for internet activities which they wants to modify. Similarly for shopping, smoking and alcohol use also. 2. % are concerned about their outside food expenses (*Figure-C-2*).

4.2% wanted to change their monthly expenses for cell phone use, 3.8% needs modification in their shopping expenses and 2.9% wants to reduce their smoking expenses. 2.1% were not satisfied with their expenditure for internet activities. 2.7% reported need to change their expenses for eating from outside (*Figure-C-2*).

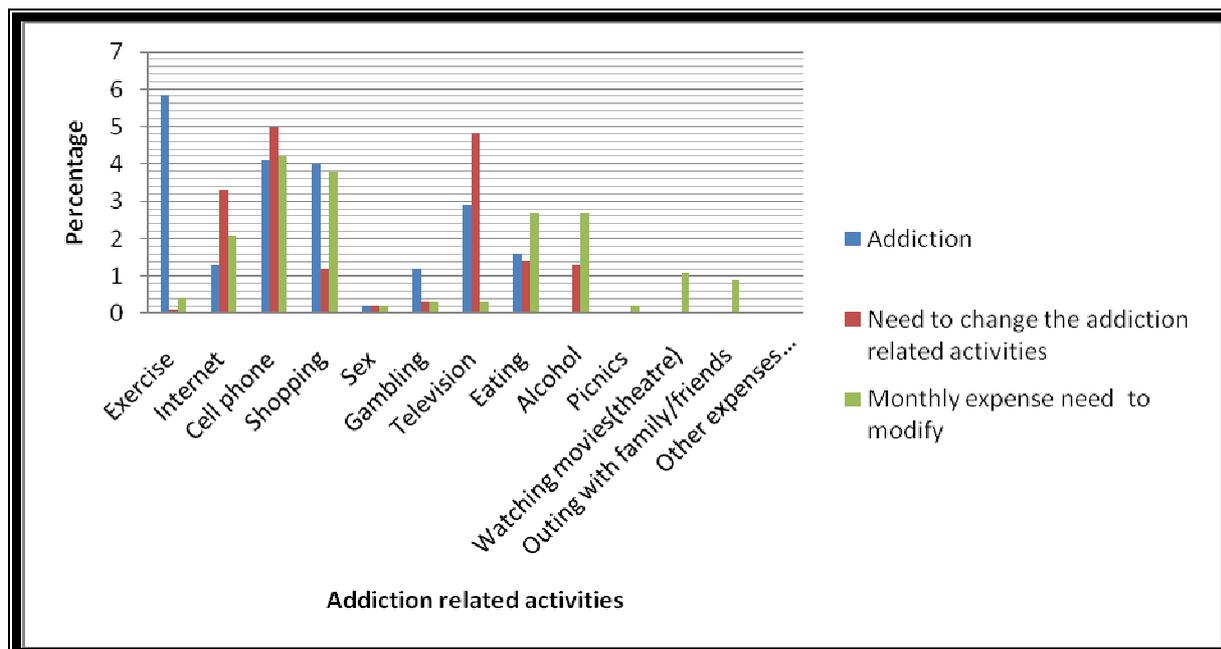


Figure-3- Comparison of the percentage of addiction reported, expression of need to change these behaviors and expression of need to modify monthly expenses

From the diagram, it is clear that for exercise and shopping and gambling, though addiction is reported high, few expressed the need to modify their expenses for that, but those who want to change their related activities are very less. The reason behind this could be cultural differences or acceptance of these behaviors as positive.

For internet, cell phone and television the self report of need to change is comparatively higher than reported addiction and modification needed in monthly internet expenses. This could be attributed to the emerging awareness regarding these technology addictions.

Eating addiction is reported and more people prefer to modify their eating expenses.

For alcohol, drugs, smoking, entertainments and other expenses also, though addiction is not studied, people expressed their need to modify monthly expenses for this (*Table-C-4*).

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11 Conclusions summarizing the achievements and indication of scope for future work.

The study reported presence of addictions for different behaviors (eating, shopping, sex, mobile phone, internet, television, exercise, work) and its relationship to different socio-demographic variables in selected urban localities of East Bangalore.

Behavioral Addictions have been observed with 1.3% for Internet(2% males&0.6% females) ; Shopping (4%)(male-3.2% & female-4.8%); cell phone(4.1%-5% males& 3.1% females);Eating (1.6%);Television(2.9%; 3.3%male,2.4% female);work (9.7%; 10.5% males & 8.9% females); Sex(.2%)(0.3% male&0.1% female); Exercise(5.85%)(7.5% males & 3.8 females)) .1.2% of the sample has Gambling addiction. 1051 participants reported that they are using face book as a social network media with a mean of 20.48.Statistically significant differences were observed in relation to family status for internet, face book and exercise addictions with more among in Single /Nuclear families. For other behaviors also, it was more among singles and lesser in joint families. Behavioral addictions were found more among Single and lesser in nuclear and joint families. Internet addiction, food addiction, shopping addiction & sex addiction & face book addiction, were more among Unmarried and least among Divorced. For work addiction, the pattern is married to divorce. Mobile, TV and eating addictions were found to be more among the divorced and widowed. Physical distress was also observed with eating addiction1 (1.6%); mobile phone addiction (6.8%); and television addiction (5.3%).18.8% of subjects with eating addiction are having association with gambling; 13.5% of television addicts are have problematic gambling.9.3% of people reported they want to change their alcohol related behaviors. 5% wants to change cell phone use, 4.8% people reported that they want to change their TV use and also internet activities (3.3%). 4.2% wanted to change their monthly expenses for cell phone use, 3.8% needs modification in their shopping expenses and 2.9% wants to reduce their smoking expenses. 2.1% were not satisfied with their expenditure for internet activities. 2.7% reported need to change their expenses for eating from outside.

Television addiction was found to be high among unemployed group. Shopping addiction was high among professionals. Exercise addiction was found to be more among students and professionals. 3.2% (24) of unmarried participants reported eating addiction. For sex addiction, 0.4% were unmarried, 0.1% were married. 9.1% (69) of unmarried participants were having mobile phone addiction, 2% were married and having mobile addiction, and 1.4% widows and

11.8% divorcees were also reported to have mobile phone addiction. For television addiction, 4.4% were unmarried. 9 % of unmarried people reported having exercise addiction, 5.8% unmarried individuals reported shopping addiction. For television addiction, 4.4% were unmarried, and 2.1 % were married. As age increases, the tendency towards addiction to work also increases, whereas as age increases, other addictions are found to be decreased. As the number of years of marriage increases, the chances for addiction towards eating, shopping, sex, mobile, TV, internet, facebook and exercise are found to be decreased. It was found that as age increased, the monthly expense for mobile phone use, TV watching and alcohol expenses were decreased. The general health distress score is significantly positively correlated to work addiction, eating addiction, shopping addiction, sex addiction, mobile phone addiction, television and internet addiction

Impact study indicates that physical distress and psychological problems were associated with these addictions. The subjects have not yet initiated psychological treatment but they have expressed need to change in terms of reducing expenses on these behaviors.

It comes to light then that ‘alarming’ percentages of the different behavioral addictions in urban community settings in our country cannot and should not be ignored. Documentation, Research Developments for assessment tools, Timely prevention and control measures will have to be executed.

Limitations

Though the questions are developed with good content and face validities, the obtained percentages of behavioral addictions could have been validated using available standardized tools.

For work addiction, participants considered doing work as much as they can is a positive aspect and housewives misinterpreted the meaning of the screening questions initially and this may reflect in the results for high percentage of work addiction.

Qualitative information about the content of behavioral addictions (Television-what sort of programmes, time etc; Work-what type of work they are more engaged in) are not addressed in this study.

Implications

Future works can focus on studying the pattern of behavioral addictions in different population (e.g.: teenagers work settings) and this can be expanding to the national level as well

as cross cultural and gender differences. The present work has implications for development of interventions for different clinical groups as well as to different job sectors.

Development of standardized assessment tool for behavioral addictions in Indian context can also be initiated.

Qualitative data in forms of various components of each behavioral addiction can be taken up for further study.

For school counselors, mental health professionals can be trained for screening of presence of various behavioral addiction methods of implications education about the severity. During focus group discussions, suggestions have come up with the need of developing posters, leaflets and awareness classes regarding behavioral addictions, need was felt in this regard and this can also be taken up for future development of the work. Future work should also concentrate on programmes for enhancing community awareness, school/college counseling and preparation of resource materials on behavioral addictions(leaf lets, workbooks, training manuals, self- help guides, manual based (self/peer) interventions, motivational interviewing & psycho education modules) can be developed.

12 S&T benefits accrued:

- I. List of research publications with complete details: (Authors, Title of paper, Name of Journal, Vol., page, year): Not Applicable
- II. Manpower trained on the project: (Research Scientists or Research Fellows)
Senior Research Fellow (01)
Field Investigators (04)
 - a. No. of PhDs produced - Not Applicable
 - b. Other Technical Personnel trained: Data Entry Operator (01)
- III. Patents taken, if any: NIL
- IV. Products developed, if any: Behavioral Addiction Screening Schedule & Information Broacher on Behavioral Addiction.

13 Abstract (300 words for possible publication in ICMR Bulletin).

Behavioral addiction is a recurring compulsion by an individual to engage in some specific activity, despite harmful consequences, as deemed by the user himself to his individual health, mental state, or social life. The present study aims to explore the pattern of behavioral addiction in an Indian context. The sample consists of 2755 subjects, 1392 were males and 1363 were female participants with in an age group of 18 and above from an urban locality in East Bangalore. Cross sectional study adopting a house to house survey methodology was used for collection of data. The survey questionnaire incorporates demographic schedule, the Lie-Bet Tool, Face book intensity Scale, Exercise addiction Inventory, questions for other behavioral addictions, General Health Questionnaire and Modified mental health.

Results: Behavioral Addictions have been observed with 1.3% for Internet(2% males&0.6% females) ; Shopping (4%)(male-3.2% & female-4.8%); cell phone (4.1%-5% males& 3.1% females); Eating (1.6%);Television(2.9%; 3.3%male,2.4% female);work (9.7%; 10.5% males & 8.9% females); Sex(.2%)(0.3% male&0.1% female); Exercise(5.85%)(7.5% males & 3.8 females).1.2% of the sample has Gambling addiction. 1051 participants reported that they are using face book as a social network media with a mean of 20.48. Physical distress was found as a co morbidity with eating addiction (1.6%); mobile phone addiction (6.8%); and television addiction (5.3%). 18.8% of subjects with eating addiction are having gambling addiction and 13.5% of television addicts have problematic gambling. 9.3% of people reported they want to change their alcohol related behaviors. 5% wants to change cell phone use, 4.8% people reported that they want to change their TV use and also internet activities (3.3%).4.2% of the participants wanted to change their monthly expenses for cell phone use, 3.8% reported modification is needed in their shopping expenses and 2.9% wants to reduce their smoking expenses. There is absence of treatment seeking behavior for behavioral addictions. Focus group discussion revealed presence of unemployment, lack of awareness, cultural difference; easy availability, accessibility, acceptance of these behaviors and easy availability were associated with addictions.

Conclusion: This study document the presence of behavioral addiction in the Indian community. It was in higher percentage for work addiction and lesser for sex. In relation to international prevalence of behavioral addiction, the prevalence rates varies (average prevalence reported in available national/ international studies-internet-4.5%,mobile-12%,gambling-4%,

shopping-5%,work-20%,eating-6.5%,sex-7%,exercise-15%) and it was found to be comparatively less. It has implication for appropriate tool development, developing therapeutic interventions, extending the study to different clinical groups and for policy making.

14 Procurement/usage of Equipment

a.

S.No.	Name of Equipment	Make/Model	Cost FE/Rs	Date of Installation	Utilisation rate %	Remarks regarding maintenance /breakdown
1)	Computer & printer	Lenova computer, hp Printer	36556/-	10/05/2013	100%	Under warranty
2)	2 UPS		8200/-	05/09/2013	100%	
3)	External Hard disk	500 GB	4325/-	20/09/2013	100%	

b. *Suggestions for disposal of equipment(s):*

Director permitted to retain the item in the department with me for research activities (preparing posters, brochures, leaflets, booklets and research articles) in relation to Behavioral Addiction.

Name and signature with date

1. Dr Manoj Kumar Sharma

(Principal Investigator)

2. Prof (Dr) Vivek Benegal

(Co-Investigator)

3. Dr. N Girish

(Co-Investigator)

4. Prof. K. Thennarasu

(Co-Investigator)

Appendices