

Implication of Transtheoretical Model in Preventing Internet Addiction and Its Synchronized Competence and Health Risk

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Abstract

Internet addiction (IA) is recognised as a cause of public health concern worldwide (**Aboujaoude et al; 2006**). In addition Transtheoretical model (TM) for Readiness to change in behaviour proposed by Prochaska and Di. Clemente (1992), has been extensively used in the field of counselling to modify addictive behaviour. In this context, the present study was carried out to design the awareness and sensitisation programme (ASP) based on TM and extended by analysing the significance of this programme on IA and its allied competence and health risk (Youth-Self Report), for internet addict adolescents (N=180). ASP was designed under four successive stages namely Orientation, Pre-contemplation, Contemplation and Preparation. Each stage comprised of stage-matched-activities to meet its specific purpose. The measurement outcomes were; Young's Internet Addiction Test developed by Young (1998) and Youth Self-Report TM(Narrow Band Syndrome Scale) developed by Achenbach T.M. and Rescorla L.A. in 2001. Pretest-Post test with control group design was adopted for this study. The obtained data was statistically analysed under descriptive and analysis of covariance (ANCOVA) analysis with the help of Statistical Package for Social Sciences (SPSS-version 22), and a p value of less than 0.05 and 0.01 was determined to be statistically significant. In result, descriptive analysis for pre-test measure of both experimental and control groups revealed the prevalence of IA and its

competence and health risk are in clinical borderline range (CBR). In result the efficacy of ASP is found to be significant over IA and its consequential competence and health risk in terms of emotional and behavioural problems distinguished under internalizing (Anxiety & Depression sub-scale) and externalizing (Rule breaking behaviour and aggressiveness sub-scale) scales, however except Thought problems sub-scale, this program is found to be less competent for problems those are comprised under NINE (Social and Attention Problems sub-scale) scale of health risk.

Keywords: Internet Addiction, Competence Risk, Health Risk, Internalizing, Externalizing, Neither Internalizing Nor Externalizing, Anxiety, Depression, Somatic Complain, Social Problem, Thought Problem, Attention Problem, Rule Breaking Behaviour, Aggressive Behaviour.

Introduction:

The present world has been extremely advanced, in which, internet is indeed a most significant factor, enabling the common people to sit at home and rule the world. Internet has existed since 1969. The global recognition of the Internet marked as the beginning of the Information Age. Nowadays, the internet has become an essential part of human's daily lives. From the significance of internet in daily life, the Internet revolution has now become an addiction, which is known as Internet Addiction (IA). IA came into focus after China's ban on shock therapy for curing Internet addicts in 2009 (**Mehta; 2009**). The term "internet addiction" was proposed by **Goldberg (1995)** for pathological compulsive internet use, which resulted in damage to the user and his or her relationships, schoolwork, or employment. **Griffith (2000)** inspected IA as a subset of behavior addiction and any behavior that meets the six "core components" of addiction, i.e., salience, mood modification, tolerance, withdrawal, conflict, and relapse. Young provided first clinical reports of patients showing patterns of abnormal internet usage behavior, which is referred as internet addiction (IA). **Young (1998)** reported excessive internet use as most closely to pathological gambling, recognized under impulse control disorder (DSM IV).

Commonly discussed internet is used worldwide and is popular across all age groups, but adolescence stage is found to be highly susceptible to Internet attraction (**Kaltiala-Heino,**

Lintonen et al, 2004). The influence of internet on adolescents is of particular importance, not only because this particular group is developmentally vulnerable but on the other hand they are among the heaviest users of internet. Adolescents use the Internet in a myriad of ways for academic, communication, shopping, entertainment etc.

Research upto date reveals that imprudent or excessive use of internet associated with(1) Physical health risks namely eye strain, repetitive strain injury (RSI), poor posture, carpal tunnel syndrome, social network-induced obesity, sleep deprivation(**Güzel et al.,2018**).(2) Psychological health risk such as difficulty in self-regulation, vulnerable, depressive, sexting, and cyber bullying, social comparison and feedback-seeking(**Nesi and Prinstein; 2015; Choi et al., 2019**)(3) Social risks which are identified as loss of privacy, sharing too much information, isolation, loss of traditional arts, poor quality information, difficulty in ‘shutting off’ and relaxing (**Salubi et al., 2019**), and (4) Academic risk includes poor grade and performance (**Patel et al. 2018**).

On the whole, adversity associated with IA is an issue that continues to be under intense scrutiny with inconsistent findings that have been obtained in various studies worldwide. Recognizing the limitation of these studies for Indian context, in the present study, the psychological health risk in terms of emotional and behavioural disorders was emphasized to explore for Indian adolescents. Emotional and behavioural disorders are characterized as- Firstly, inability to build or maintain satisfactory interpersonal relationships; Secondly, inability to learn, which cannot be adequately explained by intellectual, sensory or health factors; Thirdly, A consistent or chronic inappropriate type of behavior or feelings under normal conditions; Fourthly, A displayed pervasive mood of unhappiness or depression and Lastly, A displayed tendency to develop physical symptoms, pains or unreasonable fears associated with personal or school problems.

Admittedly the internet addiction is substantiated as a major cause of competence and health risk for adolescents, verification of potential preventive and treatment approach has been emphasized to investigate in previous literature, not only to conquer IA but also its associated health risk. These treatment strategies are broadly segregated into three major approaches namely-1) Non-psychological that includes pharmacological interventions, 2) Psychological that

involves various therapeutic interventions such as motivational interviewing, reality therapy ACT and CBT and lastly 3) Multidisciplinary approaches comprising of multimodel interventions, group counselling and Psych Educational programme. However, these all approaches emphasized on a controlled and balanced Internet usage rather than total abstinence from the Internet (**Petersen et al.; 2009**).

At a distance in the area of behaviour modification, Transtheoretical model (TM) for Readiness to change (RtC) in addictive behaviour proposed by **Prochaska and Di Clemente(1992)**, has been extensively used in the field of counselling. **TM model addressed** that change in behaviour occurs under five stages distinguished by pre-contemplation, contemplation, preparation, action and maintenance. The first stage of **pre-contemplation** is an index of awareness about problems. While the **contemplation stage**, reflects client's sensitivity and concern about addictive behaviour which leads them towards preparation to overcome addiction. **Preparation stage** manifests addicted client's effort towards positive change. Since people are different in their psychological capitals such as expectation, skills, understanding and abilities at initial stages of change, first three stages are documented as utmost important to sustain the addict on **action and maintenance stage**. As each stage has been congruence with a specific purpose, these stages are commonly implemented in counselling for different addictive behaviour. To meet each purpose in respective stage indicates successive progress of counselling. Therefore stages of change concept under TM have been widely implemented in clinical studies for health-related behaviours (**Prochaska and DiClemente, 1992; Lechner and De Vries, 1995; Laforge et al., 1999**). For instance, Calfas et al. (1996) reported stage-matched Physician-based Assessment and Counselling for Exercise (PACE) as significant for the United States population.

Recognising these stages of TM are significant in readiness to change for addictive behaviour, in the present study effort was made to design awareness and sensitisation programme (ASP) as a preventive approach for IA. Further this study will extend to verify the significance of ASP on IA and its allied competence and health risk measures on syndrome scale of youth self-report (YSR).

Significance: In Indian context the present study is exclusive in terms of verifying the implementation of Transtheoretical Model (TM) that has just been limited to smoking addiction, in preventing internet addiction and its associated competence and health risk for non-clinical population of school going adolescents.

Objective: To design awareness and sensitisation programme (ASP) and examine the efficacy of this programme on internet addiction (IA) and its allied competence and health risk (Internalizing, Externalizing & Neither internalizing nor externalizing) for school going adolescents with IA.

Hypothesis (H_A) - Awareness and sensitisation programme based on TM will be significant for reducing level of IA and its allied health risk (Internalizing, Externalizing & Neither internalizing nor externalizing) for school going adolescents with IA.

Method

Sample –The sample for the present study was comprised of 180 Internet addict adolescents from various Sr. Secondary Schools situated in Udaipur district of Rajasthan.

Sample Selection Criteria -The inclusion and exclusion criteria considered for the sample population are-

- **Inclusion Criteria:**

- ✓ Adolescents with the age range 15 to 17 years.
- ✓ Sr. sec. students using internet for last 6 months at least.
- ✓ Adolescents scored 40 or above on young internet addiction test.

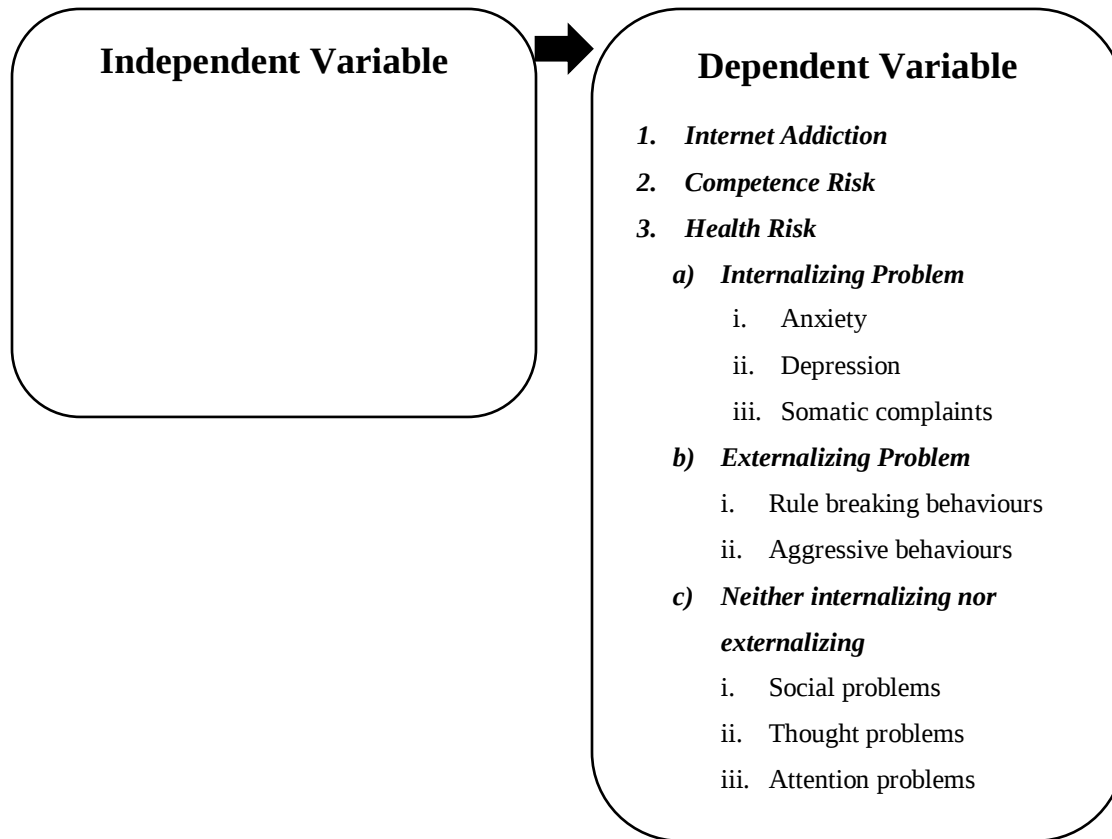
- **Exclusion Criteria:**

- ✓ Not using the Internet.
- ✓ Not willing to participate.

Variable – Variables treated as independent and dependent in the present investigation are described as following –

Table

Variable Description



Definitions of variables:

Internet addiction: IA defines as the extent of a person's involvement with the Internet, which is measured on Young's Internet Addiction Test (YIAT) developed by Young K in 1998.

Competence risk: competence risk refers to deteriorate level of activities in area of physical, social and educational and measured in terms of score measured on Youth Self-Report developed by Achenbach and Rescorla in 2001.

Health risk: Problems and difficulties faced by adolescent in their emotional, behavioural and social domains. Procedurally, it is defined by the sub-scale scores that the individual attains on syndrome scale of YSR developed by Rescale & Achenbach (2001). health risk define as set of

problems comprised under eight Narrow-Band Syndrome Scale, which are further segregated into three Broad-Band Syndrome Scales as follows-

- Internalizing (Int) comprises problems that are mainly within the self like Anxiety, Depression, Somatic complaints.
- Externalizing (Ext) comprises problems that mainly involve conflicts with other people and with their expectations such as Rule breaking behavior, Aggressive behavior.
- Neither internalizing nor externalizing (NINE) comprises problems that are included in neither the Internalizing nor Externalizing such as social problems, Thought problems, Attention problems.

Research Design - Within group design (Pretest-Posttestwith Control Design) was used for the present study, which is depicted as follows-

Figure 3.3(d)

Pretest-Posttest with Control Group Design

Groups	Pre-Test	Intervention (ASP)	Post-Test
Experimental	n=90	√	n=90
Control	n=90	X	n=90

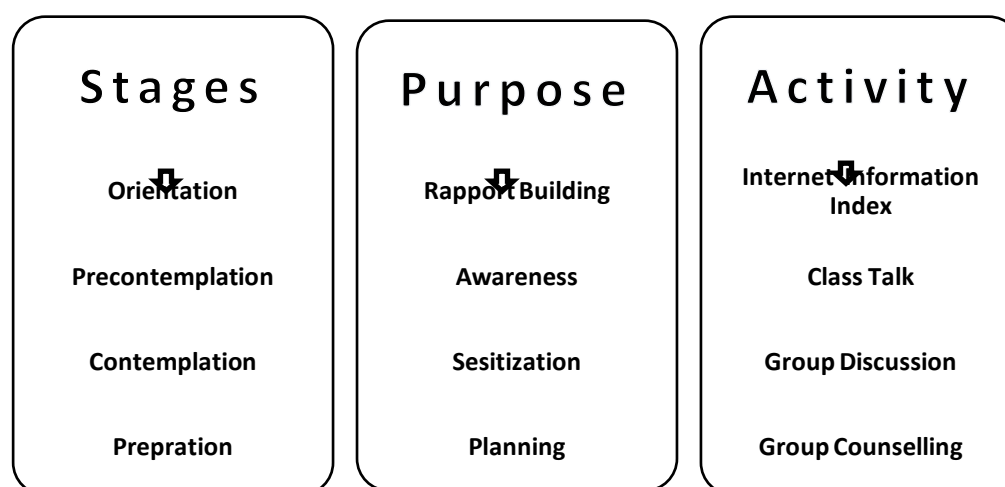
Main Outcome Measures–

- **Young's Internet Addiction Test (YIAT):** Young's Internet Addiction Test (IAT) (**Young, 1998b**) was used to measure the respondents' level of Internet addiction. IAT consists of 20 items derived from the DSM-IV-TR (American Psychiatric Association, 2000) diagnostic criteria of pathological gambling, which examines the degree of preoccupation and compulsiveness to go online, and the impact on life related to Internet usage. Psychometric properties of YIAT20 examined with factor analysis, which revealed six factors namely

salience, excessive use, neglecting work, anticipation, lack of control, and neglecting social life explaining 68% of variance for internet addiction. These factors are found with good internal consistency and concurrent validity, among which salience was analyzed as the most reliable. These six factors were endorsed as all significantly correlated (Pearson's r) with each other in range of .62 to .226 (**Widyanto and Mcmurran, 2004**).

- **Youth Self-Report- TM (YSR):** Youth Self-Report- TM (YSR), developed by **Achenbach and Rescorla (2001)** was used to assess the competence and health risk in terms of emotional and behavioural problems.
- **Awareness & Sensitisation Programme:** In the present study awareness and sensitisation programme (ASP) was designed under SPA (Stage-Purpose-Activity) model (Figure 1) as a preventive intervention for internet addiction. This model reflects the combination of TM and group counselling activities, which is described as follows-

Figure 1
SPA Model



This ASP was conducted under four successive stages of readiness to change (RtC) based on Transtheoretical model (TM) namely Orientation, Pre-contemplation, Contemplation and Preparation. Each stage comprised of stage-matched-activities to meet its specific purpose. Stages covered under ASP is described as follows-

1. **Orientation-** This stage is intended to provide basic information such as objectives and significance of ASP to the target group. Activity designed and conducted in this stage was Internet Information Index.
2. **Pre-contemplation-** The goal of this stage was to aware the addict about addiction and its adversity by providing information and raising doubt through class talk on internet addiction. The activity designed and conducted to meet this goal was class talk on internet addiction.
3. **Contemplation-** The goal of this stage was to sensitise the addict about their addictive bahviour throughgroup discussion on Pros and Cons of Internet usage. Activity designed for this stage was group discussion on Pros and Cons of Internet usage.
4. **Preparation-** The purpose of this stage is to help the addict to find a change strategy that is applicable, realistic, acceptable, accessible, appropriate, and effective through group counselling.The activity designed to meet this purpose was group counselling.

Procedure

Pretest; the tests were administrated in school setting as per time schedules given by school authorities. Before administrating tests the rapport was established with participants in orientation class, which was initially organized for each school. In this orientation class they were also ensured about confidentiality of their responses. Information regarding demographical and contextual characteristics was collected on Internet Information Index from participants.Internet Information Index wasdeveloped by author during this study. These participants were divided into two groups i.e. experimental and control group. Both groups were administrated on Young Internet Addiction Test and Youth Self-Report TM (2001). The obtained data were dealt as pre-intervention test.

Awareness & Sensitization program (ASP);Subsequent to the completion of the pretest assessment, the ASP program was introduced to experimental groupfor 6 months.This ASP was conducted under four successive stages namely Orientation, Pre-contemplation, Contemplation and Preparation. Each stage comprised of stage-matched-activities to meet its specific purpose. This program was held under two sessions per week for four consecutive weeks for each group of twenty to twenty five students of experimental group. Each session lasts 45-90 minutes in

length. Procedure of each session includes an introduction of session goal, activity and sharing. The control group was not exposed to ASP

Posttest; Subsequent to the completion of ASP program for experimental group which was conducted for 6 months, both experimental and control groups were administrated on Young Internet Addiction Test (1998) and Youth Self-Report TM (2001). The obtained data were dealt as posttest assessment.

To fill the test in both pre and posttest condition, participates were given general instructions respective to each test. Finally the data was obtained by using specific scoring pattern standardized for each test

Statistical Analysis - Data were analysed under descriptive and inferential statistical using the Statistical Package for Social Sciences (SPSS) version 22.0 (SPSS for Windows, 2010), and a p value of less than 0.05 and 0.01 was determined to be statistically significant.

- Descriptive Analysis was analysed for the mean (with graphical representation) and standard deviation for IA, competence and health risk.
- Inferential analysis comprised of **Analysis of Covariance (ANCOVA)**, which was used to analyse the significance of sensitisation and awareness programme as a preventive measure for internet addiction and its associated competence and health risk for school going adolescents.

Result

The aim of the present research was to ascertain the significance of **Awareness & Sensitization program (ASP)** based on TM on IA and its allied competence risk (CR) and health risk (HR). These competence and health risk was measured on syndrome scale of youth self-report. This YSR measures the range of various emotional, behavioural and social problems in three groups (comprising of subgroups) namely I) Internalizing (Anxiety, depression, and somatic complaints), II) Externalizing (rule breaking behaviours and aggressive behaviours) and III) Neither internalizing nor externalizing (social problems, thought problems and attention

problems). The result under descriptive and Analysis of Covariance (ANCOVA) are presented in result table 1 and 2 respectively, which are described as follows- .

Result Table 1
Summary of Descriptive Analysis for Experimental & Control Groups on Pre & Post Measure of IA, Competence& Health Risk

Outcome Measures	Groups	Pre-test		Post-test		BCR
		Mean	SD	Mean	SD	
IA	Experimental	56.40	14.23	53.58	11.36	>40
	Control	52.81	24.91	64.44	12.10	
CR	Experimental	13.67	3.35	16.70	3.84	<17
	Control	14.17	4.00	13.12	4.21	
HR	Experimental	75.32	12.16	72.68	12.25	>64
	Control	76.75	10.25	76.30	9.71	
Int	Experimental	24.95	5.07	22.78	4.90	>20
	Control	25.40	4.62	23.97	4.45	
Anx	Experimental	9.07	2.39	8.33	2.38	>8
	Control	9.10	2.32	9.15	2.23	
Dep	Experimental	7.52	2.15	6.99	2.07	>6
	Control	7.70	2.11	7.87	2.11	
SC	Experimental	8.36	1.95	6.85	2.21	>6
	Control	8.59	1.82	7.20	1.99	
Ext	Experimental	22.80	5.04	21.79	5.30	>21
	Control	23.24	4.83	23.41	4.95	
RBB	Experimental	10.01	2.55	9.66	2.64	>9
	Control	10.32	2.46	10.44	2.49	
AB	Experimental	12.79	3.13	12.13	3.39	>12
	Control	12.92	3.26	12.97	3.45	
NINE	Experimental	27.58	5.66	26.76	5.56	>24
	Control	28.11	4.92	27.54	4.48	
SP	Experimental	8.63	2.70	8.36	2.69	>7
	Control	8.89	2.34	8.80	2.17	
TP	Experimental	9.10	2.16	8.80	2.13	>8
	Control	9.21	1.91	9.10	1.73	
AP	Experimental	9.86	2.14	9.59	2.25	>9
	Control	10.01	1.72	9.64	1.60	

Figure 1
Graphical Representation of Descriptive Analysis for Experimental & Control Groups on Pre Measure of IA, Competence & Health Risk

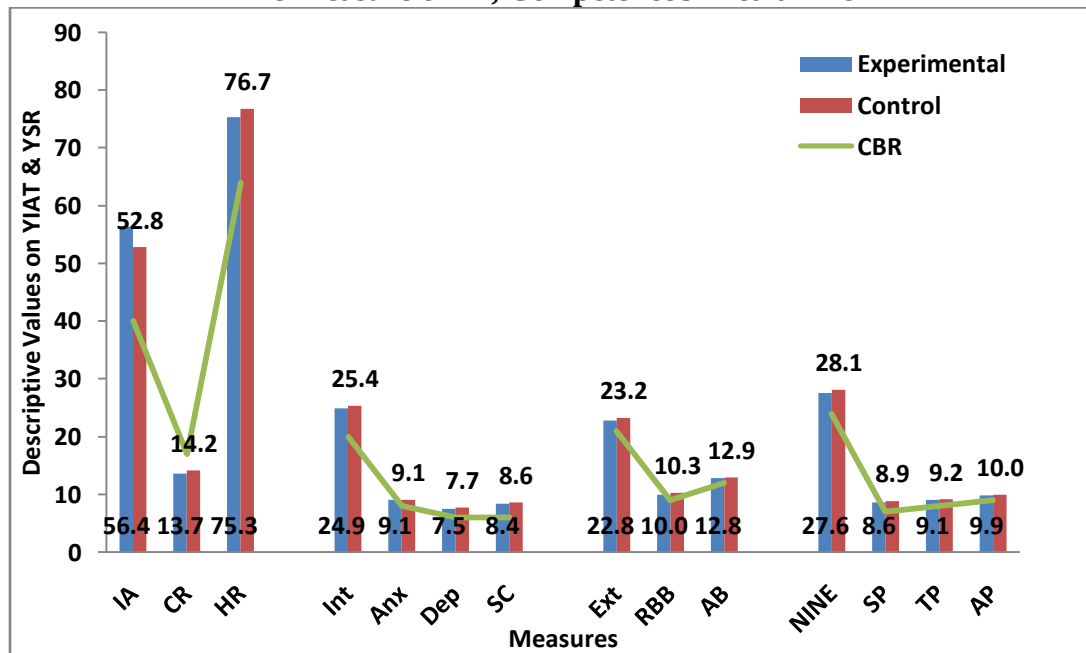
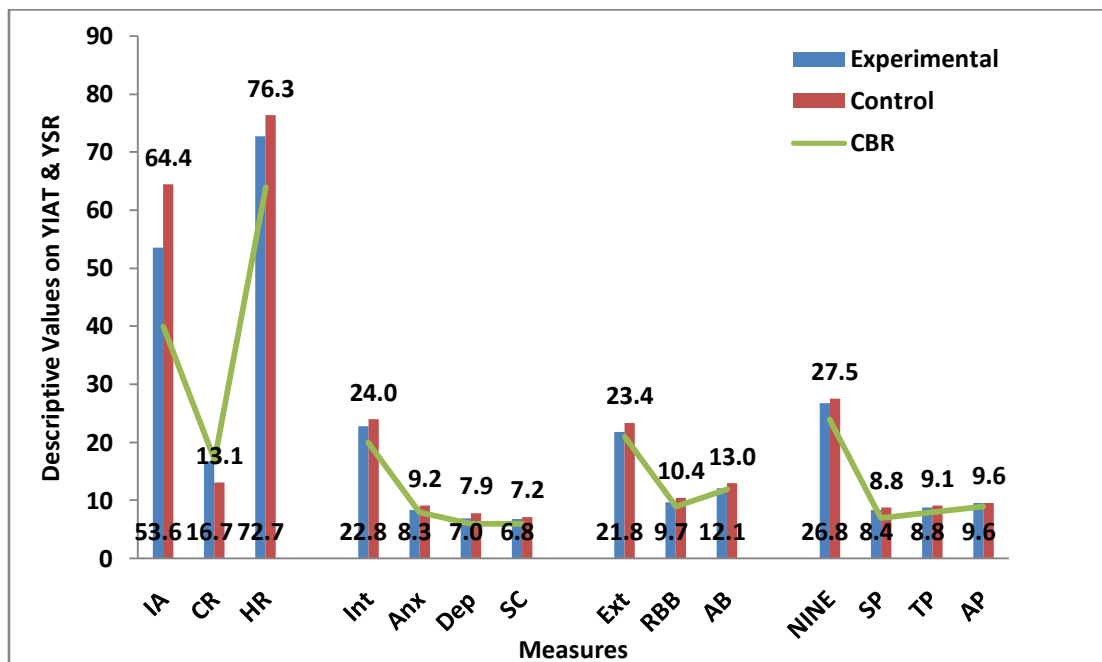


Figure 2
Graphical Representation of Descriptive Analysis for Experimental & Control Groups on Post Measure of IA, Competence & Health Risk



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Descriptive analysis (Result table 1) highlighted the obtained score measured on IA, competence and health risk for experimental and control group in their pre-test (Figure 1), and post-test condition (Figure 2), with clinical borderline range for respective measure. As observed, the mean scores for IA and its consequential health risk and its subscales are reported to be high and are considered under clinical concern. Similarly, the competence score has been shown lower than required, to be considered as normal for both groups in their pre-test and post-test measures. But at the same time, the fallen score for IA and health risk and its subscales as well as increased score for competence risk towards normal range for experimental group in their post-test measure clearly indicate the effectiveness of ASP as preventive measure for sample of school going adolescents with IA, which is observed to be remain stable for control group.

Result Table 2
Summary of ANCOVA for ASP on IA, Competence & Health Risk

Measures	Source of Variance	F	P	R ²	$\bar{R}^2$
IA	Covariance	7.96	.005**	0.21	0.20
	ASP	43.37	.000**		
CR	Covariance	747.60	.000**	0.85	0.84
	ASP	238.14	.000**		
HR	Covariance	3703.91	.000**	0.96	0.95
	ASP	40.29	.000**		
Int	Covariance	1694.62	.000**	0.91	0.90
	ASP	12.92	.000**		
Anx	Covariance	1215.28	.000**	0.88	0.87
	ASP	41.75	.000**		
Dep	Covariance	1685.392	.000**	0.91	0.90
	ASP	53.59	.000**		
SC	Covariance	450.292	.000**	0.72	0.71
	ASP	0.64	.425		
Ext	Covariance	1892.57	.000**	0.92	0.91

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	ASP	27.60	.000**		
RBB	Covariance	1179.68	.000**	0.87	0.86
	ASP	12.30	.001**		
AB	Covariance	1597.73	.000**	0.91	0.90
	ASP	18.90	.000**		
NINE	Covariance	2690.11	.000**	0.94	0.93
	ASP	2.46	.118		
SP	Covariance	2136.08	.000**	0.92	0.91
	ASP	3.71	.056		
TP	Covariance	1686.37	.000**	0.91	0.90
	ASP	4.91	.028*		
AP	Covariance	967.10	.000**	0.85	0.84
	ASP	0.73	.395		

***p<0.05, **p<0.01, $\bar{R}^2$ –Adjusted R²**

Analysis of Covariance (ANCOVA) examined the effectiveness of Awareness and Sensitisation Programme (ASP), by comparing experimental and control groups on their post-measure of internet addiction and its allied competence and health risk by considering pre-test measures as covariate (Result Table 2).

For IA, f value ($F = 43.37$, $p < .01$, $R^2 = .21$, $\bar{R}^2 = .20$), which is found to be significant, divulged declination in IA for experimental group after exposure of ASP. However, no such difference in the level of IA has been observed for control group on their post-test measure after adjusting their mean for pre-test measure of IA. The reduced level of IA for experimental group can be attributed on ASP which has not been given to control group.

While analysing competence risk ($F = 238.14$, $p < .01$, $R^2 = .85$, $\bar{R}^2 = .84$) of IA, f value is further endorsed to be significant which disclosed that the involvement in physical, academic and social activities has comparatively increased after ASP among adolescents of experimental group which remained constant for control group in their post-test. Thus, the finding verified the significance of awareness and sensitisation to bring positive change to raise competence among adolescents with IA.

Additionally, f value for health risk ($F = 40.29$, $p < .01$, $R^2 = .96$, $\bar{R}^2 = .95$) is also analysed to be significant. Therefore indicating incidence of health risk in terms of emotional and

behavioural problems are reduced after post-test for experimental group due to being aware and sensitize for consequences of IA under ASP. Nevertheless, control group which has not been exposed to ASP, has remained same in their incidence of health risk on post-test condition.

More intensely, while examined health-risk through its sub-scales, ASP has been substantiated as significant measure to reduce the likelihood of internalising problems ($F = 12.92, p < .01, R^2 = .91, \bar{R}^2 = .90$), and its specific sub-scale namely anxiety ($F = 41.75, p < .01, R^2 = .88, \bar{R}^2 = .87$) and depression ($F = 53.59, p < .01, R^2 = .91, \bar{R}^2 = .90$), on the other hand, for somatic complaints ($F = .64, p > .01, R^2 = .72, \bar{R}^2 = .71$) it remained to be ineffective. More profoundly for anxiety which reflects internalizing behaviour by revealing anxious aspect of negative feeling such as fears, feeling unloved or worthless, nervousness, guilty, fearful, worries and suicidal ideation has been exhibited less after completion of ASP among adolescents with IA. Likewise, the incidence of depression in which internalizing behaviour exhibited as negative feeling like enjoy little, loneliness, won't talk, secretive, shy, timid, non-energetic, sad and withdrawn has been further noticed to be reduced among adolescents after ASP. Besides these two aspect of internalizing, for Somatic Complaints, which is comprised of complains such as nightmares, feeling dizzy, overtired, aches, headaches, nausea, eye problems, stomach aches and vomiting has not been remarked as declined after completion of ASP.

In regard to externalizing problems externalizing problems ($F = 27.60, p < .01, R^2 = .91, \bar{R}^2 = .90$), and its sub-scales namely rule breaking behaviour ($F = 12.30, p < .01, R^2 = .87, \bar{R}^2 = .86$), and aggressiveness ($F = 18.90, p < .01, R^2 = .91, \bar{R}^2 = .90$), the results are further exhibited to be significant, hence verifying the effectiveness of ASP over problematic behaviours characterised with breaking rules, lying, cheating, running away, stealing, swearing, truanting, arguing, demanding, attention seeking, destructive, destroying, disobedience, fighting, screaming, stubborn, mood swing, suspicious, teasing, are threatening for adolescents with IA.

As far as problems distinguished under NINE ($F = 2.46, p > .01, R^2 = .94, \bar{R}^2 = .93$) such as social ($F = 3.71, p > .01, R^2 = .92, \bar{R}^2 = .91$), and attention ($F = .73, p > .01, R^2 = .85, \bar{R}^2 = .84$) are concerned for adolescents identified with IA, the f values revealed insignificance of ASP. Nonetheless, for thought problems ($F = 4.91, p < .05, R^2 = .91, \bar{R}^2 = .90$), it is examined to be effective. To elaborate the findings for Social Problems, which inhibits social interaction such as dependent, loneliness, jealousy, accidental prone and speech problems, as well as for Attention

problems which include behaviours like inattentiveness, fail to finish task, lack of concentration, confusion, daydreaming, the result revealed no remarkable declination in such problems after being aware and sensitized about addiction through ASP among adolescents with IA. But, ASP has been analysed to be beneficial in reduction of Thought Problems which is characterised with behaviour such as repeating act, sleeping disturbance, strange behaviour, unrealistic ideas.

To condense the result corroborated the significance of ASP not only for IA but also for its consequential competence and health risk and its subscales namely Int (Except for somatic complain, for Anxiety, and Depression) and ext (Rule Breaking and Aggressive Behaviour), as the prevalence of these problems are observed to be declined as a result of one being aware and sensitize for IA. On the contrary, for health risk subscales namely NINE (Except for thought problems for Social Problem, and Attention Problem) it is verified as inefficient.

Since the result is corroborated to be significant, resulting in the acceptance of Hypothesis (HA) for efficacy of ASP to reduce IA and as well as its associated competence and health risk and also for health risk subscales namely Int. and ext., however it is rejected for NINE subscale of health risk (**Result Table 5.8**).

Discussion

Asia has the highest number of Internet users in the world, approximately 922.3 million, representing 44% share of the world's Internet user population, according to data by Internet World Stats, in India ranked second in their use of Internet, after China (**Statista Research Department, 2018**). Statistic says that by 2021, there will be an increase to about 635.8 million internet users in India, which was only 26 percent in 2015. Internet technology continues to influence people's lives, especially those of adolescents. However using the Internet for purposes such as gaining knowledge and finding information positively predicts healthy lifestyles in adolescents. On the contrary the excessive use of internet affects the lives of people in a rather negative way.

National and international epidemiological studies emphasized that internet addiction is a cause of public health concern especially among adolescents (**Aboujaoude et al.; 2006**). In various studies like **Ferraro et al. (2007)**, **Griffiths et al. (2004)**, **Widyanto & Mc Murran (2004)**

adolescents were reported to be more vulnerable to the negative health impacts of Internet overuse. In same line certain Internet habits such as excessive online time has been reported to be associated with poor lifestyle habits in adolescents (**Ligang Wang, Luo et.al; 2012**). There is substantial evidence reporting that, like other addictions, IA is often aligned with psychological health risk such as incompetence, emotional, behavioural, social, cognitive problems and may even cause or surrogate for other addictions like smoking, obesity etc.

Emotional and behavioural problems often differ by the age of the child, and include a wide variety of issues such as conduct problems, aggression, anti-social behavior, anxiety, depression, and substance use. Recognising IA and its resultant psychological health risk, as a common concern, various therapeutic and preventive approaches were emphasised in different clinical studies. In this framework, TM was recognised as significant for individuals displaying symptoms of behavioural addiction. Basically the TM is a composition to perceive the process through which individuals overcome their addiction and furthermore it provides a structure to how changes in addictive behaviours can be stimulated and controlled. In recent study of **Hashemzadeh et al. (2019)**, TM model was evaluated over behavioural changes, and it was revealed that it has a great impact on human behaviour and their self-efficiency.

Looking towards best intervention approach to deal with IA, the efficacy of TM for IA is not yet to be discovered. The present study fills this gap by revealing the effectiveness of TM under awareness and sensitisation programme over IA and its associated psychological health risk. This programme was comprised of four successive stages of readiness to change with combination of group activities. These activities design to meet specific purpose of each stage with a specific goal to reduce IA and its negative impact.

The present study potentially unveils the conclusion that the TM model is convenient for the purpose of future research due to the recovery observed in the IA and its associated competence and health risk amongst adolescents.

Strengths observed in the current study was that to highlight the need to generate awareness and sensitisation through group based activities with the combination of TM, to overcome highly spread phenomenon of IA for future generation, simultaneously results obtained were initiative.

However, on the contrary, there was a limitation such as the participants were given the questionnaires which could have been manipulated on behalf of the younger age groups that lead to a false description of data.

Implication and Suggestion

The present study, however exclusive in terms of developing awareness and sensitisation programme (ASP) for IA. This programme addressed the significance of group counselling activities with combination of stages of readiness to change in addictive behaviour, described under TM, for IA and its allied psychological health risk. The current finding or ASP can be implemented in area of education and health care sector by placing suitable preventive plans, in order to generate the practices of appropriate and positive use of the internet, hence reducing the psychological health risk associated with problematic use of internet. Additionally, since the external validity of the above results is limited to non-clinical sample of 182 school going adolescents identified with IA, it is suggested that this study should be conducted on large population across different area, to amplify the generalization.

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