



Relationship Between Internet Addiction and Engagement in Meaningful Activities Among Young Adults.

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Abstract

The study aims to explore internet consumption along with participation in meaningful activities, and investigate association between Internet Addiction and Engagement in Meaningful Activities in young adults during the COVID-19 outbreak. A cross-sectional survey was conducted with 50 subjects of 18 to 25 years recruited with purposive sampling. Internet Disorder Scale–Short Form (IDS9-SF), Engagement in Meaningful Activities Survey (EMAS) and a personal Performa for demographic variables were administered. A strong negative correlation exists between Internet Addiction and engagement in meaningful activities among young adults. Internet addiction has a negative impact on Engagement in Meaningful Activities ($r = -0.610$) significant at 0.01 level (2-tailed). Prevalence of Internet Addiction was found to be 46% among participants. Participants' engagement in meaningful activities was reported to be 26 % high, 60% moderate, and 14% low on EMAS. Linear Regression analysis indicated that engagement in meaningful activities is able to predict the variance of Internet Addiction. ($\beta = 0.771$, $p < 0.001$). Thus, there is a significance decrease in Engagement of Meaningful Activities and increase in Internet Consumption and Addiction among the young adult population.

Index Terms: COVID-19, Engagement in meaningful activities, Internet Addiction, Internet Consumption, Meaningful Occupations

1. INTRODUCTION

India stands second in the world with approximately 500 million Internet users. Fast technological improvements have increased the accessibility and uses of internet in all age groups especially adolescents and young adults. Recent study showed that there is increase in Internet consumption and Internet Addiction due to the COVID-19 outbreak ^[1]. Excessive Internet consumption has been linked to habituation, addiction and adverse academic, mental, physical and social effects.

1.1 Internet Addiction

Internet addiction (IA) is defined as compulsive loss of impulse control resulting in damage to the user's relationships, schoolwork, or employment. Young K.S ^[2] has classified Internet Addiction phenomenon under following five subtypes based on the particular application that acts as a trigger for excessive Internet use-

- a. Cyber-sexual addiction: addicted individuals are engaged in viewing, downloading and trading online pornography
- b. Cyber-relational addiction: these people are overly involved in online relationship (chat-rooms, social networks) and consider them more important than real relationships instead of marital discord and family instability.
- c. Net compulsions: these people are involved with online gambling, shopping and trading activities.
- d. Information overload: under this excessive web surfing for information and database search falls. ^[2]

All of the variants share the following four components: -

1. Excessive use, often associated with a loss of sense of time or a neglect of basic drives
2. Withdrawal, including feelings of anger, tension, and/or depression when the computer is inaccessible
3. Tolerance, including the need for better computer equipment, more software, or more hours of use
4. Negative repercussions, including arguments, lying, poor achievement, social isolation, and fatigue.

Use of psychoactive substances and other reinforcing activities such as gambling, video gaming, watching TV series, using social media, watching pornography, or surfing the internet are frequently used to decrease stress and anxiety and/or improve mood. Although these behaviours in moderation are often non-problematic coping mechanisms in a minority of individuals. In others it could lead to diminished participation in normal social interactions and other daily activities. As a result, the likelihood of using excessive internet as a potential coping method in crises like COVID-19 pandemic has increases dramatically, and may turn into difficult-to-break habits.

1.2 Meaningful Activities

Meaningful activities are those which fulfil a goal or purpose that is personally or culturally important ^[3]. Meanwhile, another approach considers meaningful activities as leisure-related pursuits and conscious personal choices relating to personal interests. Best et.al, ^[4] concluded that participation in meaningful activities reduced use of substances and strengthened the quality of life among a large group of people experiencing substance-related conditions. Participation in meaningful activities is seen as meeting psychological, biological and cultural needs; it also provides opportunities to discover new information, to use capacity, and to create, promoting a sense of mastery and self-worth ^[3].

Researches has shown that COVID-19 pandemic has linked to decrease in meaningful activities ^[5]. Lockdown has had a significant impact on daily activities and existing research has concluded that daily activities have a substantial impact on mental health. Indeed, activity engagement contributes significantly to individuals' sense of purpose in life and the fulfilment of psychological basic needs (including the need for autonomy, belonging, and competence), resulting in improved health, well-being, and healthy ageing ^[6]. This may be especially true for adults who are undergoing a critical time of interpersonal development, education, family development, and career building. For instance, young adults are at high risk for mental health problems as they reported elevated loneliness and depression even after the first 5 months of exposure to the COVID-19 pandemic ^[7]. Given the importance of meaningful activities in mental health and, increasing Internet Addiction it is evident that the literature on this relationship and meaningful activities during lockdown is inadequate.

II. RESEARCH METHODOLOGY

Research Design: Cross-Sectional Study

Sample Size and Sampling technique: 50 (males and females), ages between 18- 25 years; Purposive sampling.

Place of Research: ISIC, Institute of Rehabilitation Sciences, New Delhi, India

Inclusion criteria

- Ability to understand educational content in English.
- Male and female of 18 years of age to 25 years
- History of using internet for at least past 1 year.

Exclusion criteria

- Pre-existing mental health conditions.
- Unwillingness to participate in the study.

Tools used-

1. The Internet Disorder Scale-Short form- (IDS9-SF)

The IDS9-SF is a unidimensional, standardized psychometric tool developed by Pontes HM, Griffiths MD. The nine items of the IDS9-SF are answered using a 5-point Likert scale; 1 (“Never”); 2 (“Rarely”); 3 (“Sometimes”); 4 (“Often”); and 5 (“Very often”). Total scores can range from nine to 45, with higher scores being indicative of a higher degree of Internet use disorder. Although the authors discourage the use of this tool to diagnose cases of IA in isolation, a strict diagnostic approach of an endorsement of five or more of the nine items as assessed by the IDS9-SF on the basis of answering “Very often” should only be considered if there is a need to differentiate between likely-disordered and non-disordered cases.

2. Engagement in Meaningful Activities Survey- (EMAS)

The EMAS is a standardized 12-item scale purported to reflect the construct of meaningful activity participation (Goldberg et al., 2002). The 12-item EMAS with 4-point Likert scale, ranging from 1 = ‘seldom’ to 4 = ‘always’. A total sum score ranges from 12 to 48. The meaningfulness of a person’s activities can be either low (EMAS < 29), moderate (EMAS 29–41), or high (EMAS > 41).

Procedure

The study protocol was approved by Institutional Ethical Committee (IEC) of Indian Spinal Injuries Centre, New Delhi with CTRI Registration No. CTRI/2021/05/033575. Principle Investigator followed the Good Clinical Practice Guidelines. The purpose of the study was explained to the participants both orally and on a patient information sheet that was given to them and they were given the option to withdraw at any stage of the interview. However, none declined to participate. They were also assured about maintenance of confidentiality and anonymity. Subjects were undergraduate and postgraduate Physiotherapy and Occupational Therapy students of Indian Spinal Injuries Centre Institute of Rehabilitation Sciences, New Delhi. The interview was conducted in a confidential, non-obligatory, and non-judgmental manner. The semi-structured proforma along with the two scales took on average 15- 20 minutes to fill. At the end, participants were thanked for their participation in the study.

III. RESULTS

SPSS version 24 for Windows was used for all analyses. Simple descriptive statistics were expressed as ‘mean and standard deviation’ for continuous variables, ‘frequency and percentage’ for categorical variables. Differences in demographics, Internet use, and EMAS variables among groups were tested using ANOVA test. The association between engagement in meaningful activities and IA were inspected using Pearson correlation. Linear regression analysis was also used to investigate the associations between engagement in meaningful activities and IA scores. Standardized coefficient b values were generated for each variable. All tests were two-tailed, with a significance level of $p < 0.05$.

Table 1. Demographic Characteristics of the subjects (N=50)

DEMOGRAPHICS	N	MEAN \pm SD
Total number of participants	50	21.50 \pm 2.27
Participants in Age group 1 (18-21 years)	25	19.52 \pm 1.08
Participants in Age group 2 (22-25 years)	25	23.48 \pm 1.12
GENDER		
Male	20	
Female	30	
Undergraduate		
Undergraduate	36	
Postgraduate	14	

All participants used smartphone as their main device for internet access. 80% used laptop, 45% tablet devices, 10% smart watches, 5% used intelligent personal assistant voice based device as their secondary means of internet access device.

Internet usage and Incidence of Internet Addiction

Mean time spend on the internet by all the participants was 6.4 hours per day (SD, 2.49).

Based on total IDS9-SF scores, 54% (Male: 22%; Female: 32%) and 46% (Male, 4.5%; Female, 28%) of the participants were classified as non-disordered cases and likely-disordered cases, respectively.

The Lowest score obtained on IDS9-SF was 10 and highest was 44 with a mean of 29.34 and SD of 8.74. Mean IDS9-SF scores for Male, 28.95 (SD, 9.60); Female, 29.60 (SD, 8.27); Age Group 1, 26.92 (SD, 8.59); Age Group 2, 31.76 (SD, 8.35).

Table 2. Descriptive statistic for internet consumption by Age Group

Age Groups	Mean	SD	N
Total Internet Usage			
Age Group 1 (18-21 year old)	5.72	2.35	25
Age Group 2 (22- 25 year old)	6.36	2.64	25
Internet consumption on academic activities			
Age Group 1 (18-21 year old)	1.94	0.75	25
Age Group 2 (22- 25 year old)	2.74	0.84	25
Internet consumption on non-academic activities			
Age Group 1 (18-21 year old)	3.82	2.18	25
Age Group 2 (22- 25 year old)	3.64	2.22	25

Table 3. ANOVA – Internet Usage and Age

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	5.120	1	5.120	.817	.371
Within Groups	300.800	48	6.267		
Total	305.920	49			

There was a significant difference between the groups, the Group 2 (22-25 years) shows higher internet usage.

Table 4. Descriptive statistic for total internet consumption by Gender

Gender	Mean	SD	N
Total Internet Usage			
Male	5.95	2.11	20
Female	6.10	2.75	30
Internet consumption on academic activities			
Male	2.27	0.65	20
Female	2.35	1.04	30
Internet consumption on non-academic activities			
Male	3.70	1.83	20
Female	3.50	2.34	30

Table 5. ANOVA – Internet Usage and Gender

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	5.120	1	5.120	.817	.371
Within Groups	300.800	48	6.267		
Total	305.920	49			

The ANOVA results shows there was a significant difference between the two groups, Female showing higher internet usage.

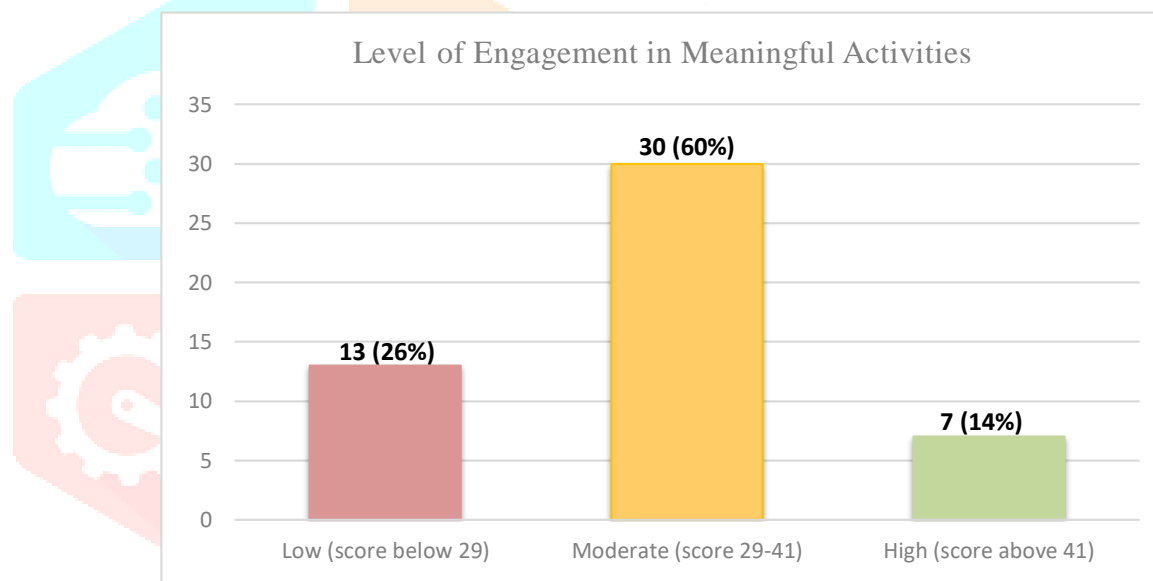
Engagement in Meaningful activities:

Level of participant's engagement in Meaningful activities was obtained through Engagement in Meaningful Activities Survey (EMAS). Lowest score obtained 18 was and highest was 44 with a mean of 33.20 and SD of 6.91. Further descriptive statistics is shown on Table 6.

Table 6. Descriptive statistic for Engagement in Meaningful activities:

EMAS	Mean	SD	N
Age Groups			
Age Group 1 (18-21 year old)	35.80	5.93	25
Age Group 2 (22- 25 year old)	29.80	6.73	25
Gender			
Male	32.05	8.23	20
Female	32.04	5.85	30

Out of 50 participants, 7 scored high, 30 scored moderate and 13 scored low on EMAS



Graph 1. Level of Engagement in Meaningful Activities among the Population

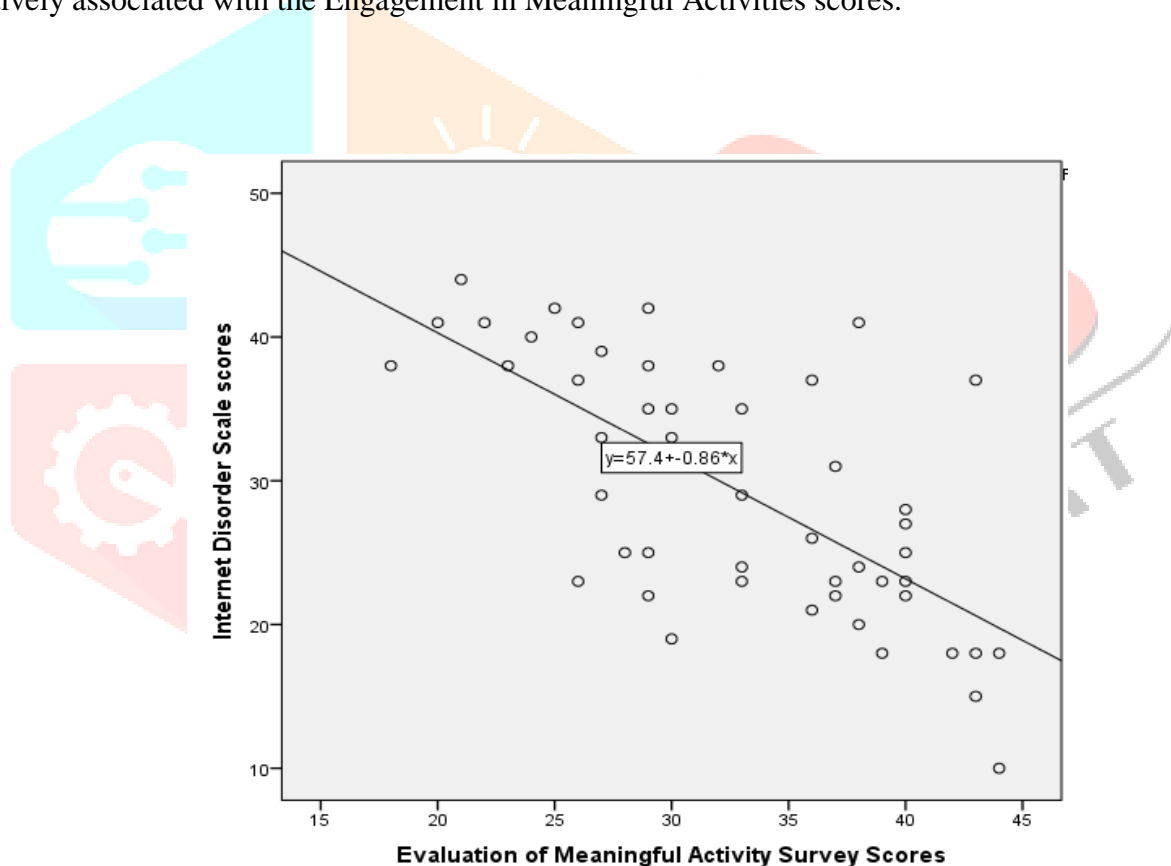
Relationship Between Scores of Internet Disorder Scale-Short Form- (IDS9-SF) And Engagement in Meaningful Activities Survey (EMAS):

Table 6. Correlations-IDS9-SF & EMAS

The Internet Disorder Scale-Short form scores	Pearson Correlation	1	-.610**
	Sig. (2-tailed)		.000
	N	50	50
Engagement in Meaningful Activities Survey scores	Pearson Correlation	-.610**	1
	Sig. (2-tailed)	.000	
	N	50	50

** . Correlation is significant at the 0.01 level (2-tailed).

Parameter estimates indicate that the respondent's scores of Internet disorder scale was significantly and negatively associated with the Engagement in Meaningful Activities scores.



Graph 2: Scatter Plot Representation of Correlations between IDS9-SF & EMAS

The relationship ($r = -.610$) was negative, strong in strength and statistically significant ($p < .025$, 2 – tailed)

Regression Analysis;

On linear regression analysis it was found that scores of internet disorder scale-short form- (IDS9-SF) can significantly be predicted by the scores of engagement in meaningful activities survey (EMAS). It indicated that one-unit increase in the raw score of internet disorder scale-short form- (IDS9-SF) leads to decrease in raw score of engagement in meaningful activities survey (EMAS) by .771.

Table 7. linear Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	54.926	4.900		11.209	.000	45.073	64.778
	EMAS	-.771	.145	-.610	-5.331	.000	-1.061	-.480

IV. DISCUSSION

This study demonstrated information about internet usage patterns among the sample population. Data shows that Group 2 i.e., Elder age group spent more time on the internet for academic activities with an average of 2.7 hours daily than Group 1 i.e., Younger age group with an average of 1.94 hours daily. On the contrary, Younger age group (Mean 3.82 hours) showed more usage of the internet for non-academic activities than elder age group (Mean 3.64 hours) with a very fine difference between their means. Elder age group showed higher internet usage overall. They also scored higher scores in IDS9-SF (Mean 26.92) than younger age group (Mean 31.76). These findings are supported by a study done by Menon et al^[8]. There was a significant difference between the groups, it's possible that the elder students spent more time on the internet and were more prone to addiction than the younger students due to increased exposure to the internet and less parental control. It is also a possibility that older students needed to spend more time because they were in senior years requiring the more time investment on the internet.

Females showed slightly more Internet usage on academic activities (Mean 2.35 Hours daily) than Males (Mean 2.27 Hours daily). Whereas on average Males spent slightly more time on the internet (Mean 3.7 Hours daily) for non-academic activities than females (Mean 3.5 Hours daily). When differences between Gender and overall internet usage were examined, Results showed that females between the two showed higher internet usage and scored slightly higher scores on IDS9-SF (Mean 29.60) than Males (Mean 28.95) which is in agreement with previous studies by Anjali S et al,^[9] in their study, showed that female participants were more prone to get internet addiction. Chiu S I et al,^[10] showed female college students score higher than male ones in the aspect of mobile addiction. The reason may be that female college student are more likely to maintain their social relationships and communicate with friends via the Internet. Females are also less likely to participate in physical activities compare to their male counterparts. Khan M A,^[11] showed that the frequency of internet addiction was significantly higher for students who lacked any physical activity as compared to those who were in the habit of doing physical activity. Students who take part in any kind of physical activity tend to stay away from gadgets that use the internet. They are more inclined towards healthy activities instead of spending time on the internet gadgetries. They tend to sleep early because of physical tiredness so chances of internet usage till late at night are rare in these students.

Although Regarding the effect of gender on internet addiction, various studies have generated inconsistent results. Menon et al,^[8] published where males showed higher internet usage. Mohammadkhani et al,^[12] could not find any statistical difference between internet use and gender. Most of them have a higher number of male participants in the studies done on internet addiction. These studies had unequal gender distribution including present study that has more female subjects, making these studies weak in terms of gender representation.

Out of 50 participants, 23 (46%) subjects were diagnosed as likely-disordered cases according to IDS9-SF and 27 (54%) were non- disordered cases. Gedam S R et al,^[13] showed the prevalence of Internet addiction among health professional undergraduates were 19.85% however, that was before Covid-19 outbreak. A recent study done by Lin M P,^[14] in 2020, showed the prevalence of Internet addiction at 24.4%. This is consistent with the findings that the prevalence of IA has significantly increased during the COVID-19.

Upon looking into the Engagement in Meaningful activities among the participants, it was revealed that out of 50 participants, 7 (26%) scored high, 30 (60%) scored moderate, and 13 (44%) scored low on EMAS. A

study conducted by Ellen C, et al, ^[5] on meaningful activities during COVID-19 lockdown assume that the longer the COVID-19 pandemic lasted, the more difficult it became to be content with limited activities, and the more individuals lost interest in them. As a result, the activities' schedule didn't provide enough opportunity for meaningful characteristics, such as going shopping together for fun ^[5]. This could explain why the majority of the individuals experienced moderate meaning in their activities in present study.

Younger age group on average scored more (Mean 35.80) on EMAS than Elder are group (Mean 29.80). This can be possibly explained by the fact that older students experience more stress and anxiety due to increased academic pressure and family responsibilities than younger students. As the lockdown persisted, older students experience more stress regarding unemployment. In return, struggled to engage and find meaning in activities. Males on average scored slightly more (Mean 32.05) than age Females (Mean 32.04). Females' sense of identity in activities is more affected by the social connections formed, rather than by other aspects in the activity setting according to Sharp E H ^[15]. Women seem to attach more meaning to social activities, which could hardly or no longer be carried out during COVID-19 lockdown, while men attach more meaning to physical activities that could still be performed during the lockdown.

According to the results of this research, a strong negative correlation exists between IA and engagement in meaningful activities among young adults. As demonstrated that Internet addiction has a negative impact on Engagement in Meaningful Activities ($r = -0.610$). This means that students with a higher level of IA are less liable to engage in meaningful activities. The existence of addictive Internet use may exert detrimental effects on their lives. Internet Addiction makes it difficult to engage in activities that sustain young adult's creativity, sense of accomplishment, and overall life satisfaction. Decrease in these purposeful activities causes poor quality of life and can has linked to other mental conditions as well. Lack of meaningful activity can result in feelings of passivity, boredom and a sense of alienation from normal roles, routines and sense of self ^[16] that will then can cause more consumption of online activities which in turn becomes a cycle. Despite a willingness to engage in other activities, addictive tendencies cause difficulty in breaking that cyclic habit. Furthermore, Association between internet addiction and engagement in meaningful activities was also investigated by using linear regression taking engagement in meaningful activities as a dependent variable (Outcome variable) and internet addiction as the independent variable (Predictor). The results showed that Internet addiction was negatively associated with engagement in meaningful activities and significantly predicted by this variable ($\beta = 0.771$, $p < 0.001$). The standardized (β) coefficient for internet addiction indicates that one-unit increase in the raw score of IDS9-SF leads to a unit decrease in raw score of engagement in meaningful activities survey (EMAS) by .771.

Limitation: Small sample size, single centre, and cross-sectional nature of the study causes constraint in the generalization of the findings; instead, it recommends further studies in this field.

V. CONCLUSION

The present study concluded that internet addiction is negatively correlated with engagement in meaningful among young adults. In this study we found that among sample population 46% came under the likely disorder internet addiction according to internet addiction disorder scale short form (IDS9-SF). Females and adults ages between 22 to 25 years were more prone to develop internet addiction. Similarly, 26% of the sample population were scoring low, 60% moderate and, only 14% high on engagement in meaningful activities. This research highlight the role of activities in Internet Addiction especially during COVID-19 and suggests a new idea that may be of interest to health policymakers.

Source of Funding

None.

Conflict of interest

None.

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