



BEING "ONLINE": EFFECTS OF SELF-REPORTED DURATION OF INTERNET USE ON PSYCHOSOCIAL HEALTH OF THE USERS.

Dr. Akanksha Tomar*

Resident, Department of Community Medicine, Maulana Azad Medical College, New Delhi-110002. *Corresponding Author

Dr. Bratati Banerjee

Professor, Department of Community Medicine, Maulana Azad Medical College, New Delhi-110002.

Dr. G.K. Ingle

Director Professor, Department of Community Medicine, Maulana Azad Medical College, New Delhi-110002.

ABSTRACT

Technology has paved the way into our brain. Psychosocial health of medical professionals will certainly have bearing on public health, hence considering any inexorable yet adaptable factor is important. We intended to find out the association, of duration of use of internet and common psychosocial health conditions. We assessed 800 medical undergraduates. Duration, as past years of uses and the current average daily duration, was considered. Mental health was assessed using Depression anxiety stress (DAS) scale and social health by online cognition score (OCS). Symptoms were severe in participants with higher daily duration of use. About 43% participants satisfied the criteria for problematic internet use. Impaired social health was associated with higher average online activity and more so among late night users. Also, mental and social health of the users showed high correlation. Duration being one of the resilient factors, its adaptability should be essentially considered at an early phase.

KEYWORDS : Psycho social health, Digital devices, Medical undergraduate.

Introduction:

Technology is inevitable, but is encroaching into our life. Digital devices are now obligatory to keep a pace with the world. These are the devices/systems that generate and use digital timing signals operating at greater than 9000 cycles per second (9 KHz).[1] Computers and smart phones are among these devices owned by majority of us. But their rampant use is becoming a double edged sword. Along with the mental ease and social synergy they brought, psychosocial concerns related to the use can no more be neglected. As Internet is becoming an intrinsic component of this use, most of the time spent on these devices is online.

Many studies have reported associations between Internet addiction and psychiatric symptoms, like depression, anxiety and loneliness.[2-6] Increased duration spent online to the levels of addiction, was found to be associated with higher ratings on measures of depression, loneliness and social isolation.[7-9] Majority of the studies assessing the implications of the use of these devices, assessed either IT professionals, school or university students or general population.[10-14]

Usage of these devices is rampant among medical undergraduates in our settings. Does it has any association with the mental and social health of this population is a significant concern as these are the upcoming medical fraternities. Doctors in our settings are said to be working in an encumbering environment hence any associated resilient factor ought to be considered for modification. Considering the accessibility and affordability of devices from a younger age in this generation, assessment of associated psychosocial health implications becomes important. As duration spent, is one of the pliable factor, it's association, if any, must be revealed. In view of the widespread use of these devices, even relatively small risks associated with their use would have important public health implications, and interventions that result in decreased risk would have great public health benefits.

Aim:

The present study aimed to find the association of duration of internet use on the psychosocial health of the users.

Materials and methods:

It was a cross-sectional analytical study conducted among undergraduates of a medical college located in Central Delhi. All the students aged 18 years and above, who could be contacted and

gave the written informed consent to participate in the study, were included. No exclusion criteria was led down.

Considering the lowest prevalence of all the computer related health problems included under the objectives of the study, prevalence of mental stress was taken to be 35%, from the study of Sharma et al.¹⁰ The final sample size was 781. However, considering ethical issues, no sampling was done, in study all the students in the four admission batches were included, which was 1000. Final analysis could be done for 800 students.

A pretested validated semi structured anonymous proforma, part of which was self-administered was used for data collection. Standardized validated predesigned scales were used for assessing the outcome variables included in the study.

1. Depression Anxiety Stress scale (DASS) [15] was used for mental health assessment; a 42-item self-report instrument designed to measure the three related negative emotional states of depression, anxiety and tension/stress.
2. Online Cognition Scale (OCS) [16] for social health. It identifies problematic Internet use (PIU) in the responder which is taken as a proxy indicator of the social health of the participants. It contains 36 items on a 7 – point Likert-type scale. The scale identifies four factors: social comfort, loneliness, diminished impulse control or impulsivity, and distraction.

As we did not intend to assess any pathology of internet use, no diagnostic criteria was followed.

Data collection:

The permission of the head of the institute was taken prior to the initiation of the study, as well as the written informed consent from the students was obtained prior to inclusion in the study. Four admission batches were included in the study, these batches had 250 students each. Listing of all the students was done. Students were contacted at all the possible point of contact. Maximum three attempts were made to contact a student and if it could not be done he or she was removed from the list.

Out of the 1000 students, 907 could be contacted and consented for participation in the study. Response rate of the participants was 92%. Final analysis was done on 800 students as those with incomplete proforma were excluded from final analysis.

Statistical Analysis:

The data collected was analysed using SPSS version 17. Association between psychosocial health and duration of device use was tested for significance by statistical tests for difference between means by Mann-Whitney U test. P value less than 0.05 was considered statistically significant. Correlation between the mental and social health of the users is shown by analysing the DASS and OCS scores for correlation coefficients.

Results:

Of the 800 participants, 55.2% were males and 44.8% were females with mean age 20.38 (± 1.59) years. [Table- 1]

Table 1. Description of respondents[#]:

Characteristic	Male n (%)	Female n (%)	Total n (%)
Gender	442 (55.20)	358 (44.80)	800 (100)
Graduation year			
I	71 (16.06)	129 (36.03)	200 (25.00)
II	281(63.57)	136 (37.99)	417 (52.13)
III	90 (20.37)	93 (25.98)	183 (22.87)
	Mean SD	Mean SD	Mean SD

Percent total is given column wise.

Mean score of the mental symptoms when compared against the duration of device use applying Mann – Whitney U test, depression and anxiety were significantly (p<0.05) higher in the participants using internet for more than 6 hours a day. However, mean score for stress was marginally higher among frequent users but not statistically significant. [Table- 2]

Table 2. Comparison of mental symptoms against daily duration of device use:

Duration (hours/day)	≤ 6 hours		U test p value	> 6 hours		U test p value
	Mean	SD		Mean	SD	
Depression	7.40	7.87	6.98 0.01	8.29	7.57	7.76 0.16
	8.27	7.13		5.78	7.87	
Anxiety	7.64	8.67	7.03 0.02	7.79	8.09	9.11 0.86
	7.31	7.25		6.17	7.34	
Stress	11.19	11.82	7.35 0.16	11.50	11.46	8.64 0.55
	7.97	7.92		6.12	8.01	

Analysing the mean scores for individual sub dimension of mental health against the past years of internet use by the participants, shows no statistically significant (p > 0.05) difference between the scores of the two groups.

OCS scores when compared against duration of Internet use per day, mean score was higher for those using the Internet more than 6 hours a day compared to the users using it ≤ 6 hours and the differences were statistically significant (p<0.05). [Table- 3]

Table 3. OCS score stratified according to duration of Internet use:

Frequency of Internet use OCS dimension	≤ 6 hours/day		> 6 hours/day		U test	p value
	Mean	SD	Mean	SD		
Social comfort	32.01	12.30	34.78	11.47	3.28	0.001
Distraction	29.55	11.65	31.85	10.54	2.23	0.027
Impulsivity	17.56	7.16	20.02	6.92	4.25	0.000
Loneliness	20.82	8.70	23.89	9.30	3.33	0.001

Correlation of mental symptoms (DASS scores) with social health assessment (OCS score) shows positive correlation among the dimension of both the scales with a high significance (p<0.01) i.e. presence of one attribute significantly affects the development of other. [Table-4]

Table 4. Correlation of DASS scores and OCS scores:

	Depression	Anxiety	Stress	Social Comfort	Distraction	Impulsive	Lonely
Depression	-						
Anxiety	0.773**	-					
Stress	0.760**	0.787**	-				
Social Comfort	0.277**	0.344**	0.317**	-			
Distraction	0.284**	0.287**	0.322**	0.708**	-		
Impulsive	0.313**	0.308**	0.371**	0.636**	0.708**	-	
Lonely	0.215**	0.222**	0.313**	0.650**	0.656**	0.658**	-

** p < 0.001.

Discussion:

Impact on the psychosocial health of the users has been found to be significantly associated with increased duration of internet use. Duration of internet use had a significant impact on symptoms of depression and anxiety among mental health symptoms. Depression and anxiety are found to be significantly higher among the users with higher duration of daily use. If the duration of device use is a close proxy of the internet use, other scholars also had similar findings. Thomée et al in their work, in young adults, had concluded that intensive (in terms of duration) use of these devices have significant association with mental health symptoms of the users. Frequent mobile phone use was shown to be a prospective risk factor for depression in both sexes while intensive computer use was a prospective risk factor for stress and depression in the women.[17] Above mentioned findings confirm with those of Zahojia et al who showed the association of long hours of computer use with poor mental health status.[18]

We have found significant difference in the duration of Internet use by the users satisfying the criteria of PIU to those with normal use. Those with PIU had a higher duration of use. Our findings support those of Wang et al.[19] Similarly, increased duration spent browsing Internet had a significant association with impairment of social health of the users. Those engaged in online activities for more than 6 hours a day had significantly higher levels of discomfort, distraction, impulsivity and sense of loneliness in real world situations. Our findings corroborate with Wu et al.[20]

We also observed strong positive correlation between mental and social health of the individual. Mean score for depression, anxiety and stress were significantly higher among the individuals who satisfy criteria for PIU. Frequent use of social networks is thought to be associated with certain behavioural changes, and some authors have expressed concerns about its possible detrimental effect on mental health.[21,22] Lam et al also identified stress related variables to be significantly associated with development of Internet addiction (IA).[23]

In another study from India, among nursing professional students, Shinde et al found significant correlation between excessive Internet use, and neglect of work and social life. The results suggested that pathological use of the Internet is detrimental to the mental health.[24] Yadav et al suggested strong positive correlation between internet addiction and mental symptoms among students.[25]

Findings from Gowen et al showed the other way round. Individuals living with a mental illness were more likely to report engaging in various social networking activities which promote connectivity and making online friends. They were more likely to report wanting resources on independent living skills and overcoming social isolation available here. This again, in a way supports the evidence of strong interaction between mental health and online activities of an individual.[26]

So far all the findings discussed above has shown association of psychosocial health of the user and the duration spent using the mentioned devices. Being a cross sectional study, causal association could not be ascertained but these results can lead to think upon the need to safeguard against the problem. Duration can be either self-restrained or guarded externally. Hence this association if backed by more evident study designs can be crucial to think upon new technologies to regulate the duration. There can be inbuilt reminders to keep on reminding the user about the duration spent. Moreover users shall be aware of the impacts and act pertinent to foster good health.

Conclusion:

Digital devices present both opportunities and challenges. The benefit could be severely undermined if abuse and overuse are not kept in check. Impact like physical discomfort are more obvious, but psychosocial health of the users is none the less imperative as this is often hidden and stigmatised issue and recognising this is more crucial. Duration of device use is well identified modifiable risk factor which should be taken care of. With a word of caution we would like to add that all the outcomes assessed are only symptoms regarding the particular health attribute, using relevant validated screening tool. Confirmed diagnosis should be made by a physician.

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Authors' contribution- All the authors have contributed in conception and designing the study. Acquisition of data, analysis, interpretation and manuscript writing has been done by the corresponding author. Manuscript has been edited and revised by all the authors. All the authors have given final approval of the version to be submitted.

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