PROBLEMATIC INTERNET USE AMONG HEALTHCARE PROFESSIONALS:
EMERGING BEHAVIORAL PATTERNS IN SOCIAL NETWORKING SITES
ADDICTION

Marium Sohail¹, Haris Rauf², Tayyeba Iftikhar Mirza³, Rabia Ashfaq⁴, Anbreen Aziz⁵, Hasan Ibrahim⁶
¹Medical Officer, Department of Medical Education, Combined Military Hospital, Rawalakot, Azad Jammu Kashmir.
²Senior Lecturer, Department of Medical Education, Foundation University Medical College, Islamabad (FUMC).
³Assistant Professor, Department of Medical Education, Fatimah Jinnah Medical College, Lahore (FJMU).
⁴Senior Lecturer, Department of Medical Education Hazrat Bari Sarkar Dental College, Islamabad (HBS).
⁵Commanding Officer, Combined Military Hospital, Azad Jammu Kashmir.

ABSTRACT:

BACKGROUND & OBJECTIVE: Internet has swayed all aspects of human society and the exponential rise in global internet users indicates that internet & Social Networking sites (SNS) have become an essential part of the daily lives of people with potentially addictive effects of its overuse. This may lead to social isolation, depression & professional effects. This behavioral addictive pattern has also been observed in increasing trend among healthcare professionals worldwide. This study aims to assess prevalence of internet addiction and its behavioral patterns (BP) in Pakistani healthcare context, to determine the prevalence and intensity of Internet Addiction (IA) among Medical Doctors.

METHODOLOGY: A Quantitative; Cross-sectional Survey was conducted at Shaikh Khalifa Bin Zayed/Azad Kashmir Combined Military Hospital Rawalakot for 2 months. After calculating sample size with 95% Confidence Interval limit, 100 medical and dental doctors were selected using convenience sampling. After IRB approval & informed consent data was collected using pre-validated “Young’s Internet Addiction Scale”& “Behavioral Patterns scale”. The participants recorded their response on a 5-point Likert scale and dichotomous scale for each scale respectively. Data was summarized using descriptive statistics & inferential statistics in SPSS 23. Addiction was classified into 4 categories. The significant association between IA groups and BP groups was computed by Fisher’s exact test with P-value <0.05 as significant.

RESULTS: The Response rate was 87% with 54% males and 56% females. The prevalence of internet addiction was 79%(n=69). Out of them 36% (n=31) had mild, 41% (n=36) had moderate addiction while 2% (n=2) had severe addiction. Pattern of internet addiction symptomatology shows that prevalence of IA is higher in excessive use (87.35%) & lack of control (77.01%) while least in anticipation (35.63%) category. Statistically significant difference was seen in behavioral patterns among addicted and non-addicted medical and dental doctors.

CONCLUSION: Internet Addiction is a recognizable disorder from the spectrum of Problematic Internet Use. This study reports the prevalence of internet addiction among health care professionals and burden of multiple behavioral patterns in association with IA, which is an emerging mental health concern.

KEYWORDS: Behavioral Patterns, Healthcare Professionals, Internet Addiction, Problematic Internet Use.

How to cite this:
Sohail M, Rauf H, Mirza TI, Ashfaq R, Aziz A, Ibrahim H. PROBLEMATIC INTERNET USE AMONG HEALTHCARE PROFESSIONALS: EMERGING BEHAVIORAL PATTERNS IN SOCIAL NETWORKING SITES ADDICTION. jumdc. 2020;11(1):15-22.

doi: https://doi.org/10.37723/jumdc.v11i1.262.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.
INTRODUCTION:

Humans value relationalness and hence interpersonal communication is of prime significance to them \[^{[1,2]}\]. The traditional face to face communication has evolved over time and internet based social media is the new technology on board. Drastic proliferation within IT sector has changed the conducts of interpersonal communication globally \[^{[3,4]}\]. Internet has encompassed all aspects of society and an exponential rise in its users worldwide indicates that the dependence to Internet is increasing over time \[^{[5,6,7]}\]. The use is always beneficial but the abuse of even the most effective technology makes it lethal to mankind. There has been much debate on the use, over use and addiction regarding internet and social networking sites usage \[^{[8,9]}\]. Contrary to substance abuse or chemical addiction, internet addiction (IA) is difficult to point out due to its overarching boundaries of practical usage & information providence vs. its overuse. So, internet overuse or addiction may easily be justified and signs may be masked if one doesn't self-evaluate periodically. Social media addiction has emotional, psychological, physical, interpersonal, well-being and performance effects on one's life \[^{[10,11,12,13]}\]. Due to these far-reaching consequences IA has been included in DSM-V Mental Health Classification criteria in Compulsive-Impulsive spectrum \[^{[9,14]}\]. Among internet usage, Social Networking Sites (SNS) addiction has the most far reaching effects on its users. So, a multi-dimensional syndrome called PIU i.e. Problematic Internet Use has been defined which encompasses cognitive & behavioral effects which negatively effects social, academic, personal and professional life. IA leads to social isolation, depression, relational problems, academic failures, personal and professional loss of productivity, joblessness and marital discord \[^{[15,16]}\].

Literature suggests that health professionals show an increasing trend in the usage of mobile phones and SNS in the past decade. According to Takesh Sato \[^{[17,18]}\] the prevalence of IA is 8 to 10% in students, Sumit \[^{[17]}\] reported that 94.05% of MBBS students use internet and SNS on mobile phone regularly. Kohler reported that 87% of healthcare professionals use internet on mobile phone during clinical practice \[^{[19]}\]. These alarming statistics suggest that health professionals are at increased risk of falling a prey to internet addiction and hence its negative effects \[^{[20]}\]. In Pakistan the users of SNS have increased numerous folds over the last decade placing Pakistan 7\(^{th}\) among Asia's countries in internet usage \[^{[21]}\]. Limited work has been done in Pakistani context to ascertain the prevalence of internet addiction in doctors and health care professionals. A study conducted in Agha khan reports 74% minimal addicts, 24% moderate addicts and 2 % severe addicts \[^{[22]}\]. Another study by Ahmer Z \[^{[23]}\] reports 65.6% minimal addicts, 18.5 % moderate addicts and 0.9% severe addicts.

Young’s Internet Addiction test (YIAT) is a 20-item test, developed by Kimberly Young \[^{[24]}\] for the measurement of severity of self-reported compulsive use of internet classifying it as impulse control disorder. Internet refers to all kind of online activities and SNS usage. Youngs test is validated and reliable tool which Cronbach alpha of 0.89. This tool has been tested across many regions and has proved to be valid and reliable tool for measurement of severity of internet addiction \[^{[25]}\].

Due to scarce literature in this domain and the emerging mental health disease burden in our society. It's the need of hour that we explore the prevalence and impact of excessive SNS and internet use. IA is not a disorder for everyone, but those with borderline tendency may fall victim to IA due to personal, environmental and contextual influences leading to social isolation, depression, disbalances personal and professional life \[^{[26,27]}\]. This will ultimately effect both the personal life of the doctors as well as the health care delivery to the patients. So, this study is a small brick in exploring the newly emerging IA among healthcare professionals.
The prevalence of internet addiction was reported to be 79% (n=69). Out of them 36% (n=31) had mild addiction, 41% (n=36) had moderate addiction while 2% (n=2) had severe addiction (Figure-I). Out of 100 participants, 89 returned the questionnaires, 2 questionnaires were incomplete and excluded from the study (Response rate =87%). There were 54% (n=47) males and 56% (n=40) females including all categories of House officers, Post-graduate trainee, Medical officers and consultants. Mean age of participants was 29.40±4.13 years.

Differences in behavioral pattern were found when the cross tabulation was done between BP dichotomous responses and IA scale (5-point Likert responses) using fisher’s exact test. The groups of moderate and severe addiction were merged for this step. Among the three groups of non-addicts minimally addicted and moderately to severely addicted categories, higher frequencies of behavioral changes due to problematic internet usage were observed in moderate to severe addicts. The results were statistically significant having P-value <0.05 in all categories (Table-III).

Pattern of internet addiction symptomatology shows that prevalence of IA is higher in excessive use (87.35%) & lack of control (77.01%) while least in anticipation (35.63%) category (Table-II).

About 98% (n=85) of the participants were registered with Facebook, followed by 97% (n=84) for Whatsapp & 92% (n=80) for you tube while 82% (n=71) were registered to some medical education sites/Apps. The main reasons for using Internet was chatting 92% (n=80), social networking 87% (n=76), file sharing 87% (n=76), educational purpose 86% (n=75), watching movies 80% (n=70) followed by stalking 63% (n=55) (Table-I).

METHODOLOGY:
A Quantitative; Cross-sectional Survey was conducted at Shaikh Khalifa Bin Zayed/ Azad Kashmir Combined Military Hospital, Rawalakot from Oct -Nov 2019. The study has been approved by the Ethical review committee of Shaikh Khalifa Bin Zayed/ Azad Kashmir Combined Military Hospital, Rawalakot. Sample size was calculated through Open-Epi software with 95% Confidence Interval and 5 % bound on error limit. A total of 100 medical and dental doctors were selected using convenience sampling. Both Male & female, House officers, Post-graduate trainee, Medical officers and consultants in clinical practice were included in the study. Medical and dental undergraduates, basic sciences post-graduate trainees and consultants& nursing & Paramedic staff were excluded from the study.

After IRB approval & informed consent of participants, data was collected using pre-validated “Young’s Internet Addiction Scale (YIA scale)” & “Behavioral patterns scale (BP scale)” using printed questionnaires [23, 24, 25]. YIA scale with high face validity and reliability of 0.899 Cronbach alpha was used after receiving permission through email. In addition to the demographic information, YIA scale consist of 20 questions in 6 domains of Salience, Excessive use, Neglect work, Anticipation, Lack of control & Neglect social life with total score ranging from 0-100 [24]. The participants recorded their response on a 5-point Likert scale for each question. Individual results of IA scale questions of each domain were aggregated to give a consolidated score for the said domain which was then re-categorized into 4 classes i.e. normal use (score <30), mild addiction (score 31-49), moderate addiction (score 50-79), severe addiction (score >80) by calculating severity impairment index. BP scale consisted of 16 questions in 2 domains of SNS usage type and SNS usage pattern with dichotomous response options. No incentive or reward was given to the participants for inclusion in the study. Collected data was entered into SPSS 23 and prepared for analysis. The data for each group was summarized using descriptive statistics (means, percentages, frequencies & SD). The means of behavioral patterns were cross tabulated against the 4 addiction categories. Fisher's exact test was used to report the difference between SNS behavioral pattern and IA categories. A P-value of <0.05 was taken to be significant.

RESULTS:
The prevalence of internet addiction was reported to be 79% (n=69). Out of them 36% (n=31) had mild addiction, 41% (n=36) had moderate addiction while 2% (n=2) had severe addiction (Figure-I). Out of 100 participants, 89 returned the questionnaires, 2 questionnaires were incomplete and excluded from the study (Response rate =87%). There were 54% (n=47) males and 56% (n=40) females including all categories of House officers, Post-graduate trainee, Medical officers and consultants. Mean age of participants was 29.40±4.13 years.

About 98% (n=85) of the participants were registered with Facebook, followed by 97% (n=84) for Whatsapp & 92% (n=80) for you tube while 82% (n=71) were registered to some medical education sites/Apps. The main reasons for using Internet was chatting 92% (n=80), social networking 87% (n=76), file sharing 87% (n=76), educational purpose 86% (n=75), watching movies 80% (n=70) followed by stalking 63% (n=55) (Table-I).

Pattern of internet addiction symptomatology shows that prevalence of IA is higher in excessive use (87.35%) & lack of control (77.01%) while least in anticipation (35.63%) category (Table-II).

Differences in behavioral pattern were found when the cross tabulation was done between BP dichotomous responses and IA scale (5-point Likert responses) using fisher’s exact test. The groups of moderate and severe addiction were merged for this step. Among the three groups of non-addicts minimally addicted and moderately to severely addicted categories, higher frequencies of behavioral changes due to problematic internet usage were observed in moderate to severe addicts. The results were statistically significant having P-value <0.05 in all categories (Table-III).
Figure-I: Severity of internet addiction among participants.

Table-I: Social Media and Internet usage.

| Registered on Social Media | Numbers | Percentage |
|----------------------------|---------|------------|
| Facebook                   | 85      | 98         |
| WhatsApp                   | 84      | 97         |
| YouTube                    | 71      | 82         |

Internet Usage

| Chatting                   | 80      | 92         |
| Social networking          | 76      | 87         |
| File sharing               | 76      | 87         |
| Educational purpose        | 75      | 86         |
| Watching Movies            | 70      | 80         |
| Stalking                   | 55      | 63         |

Table-II: Participant's Domain Specific scores of Internet addiction(symptom complaints).

| Symptom Complaints (maximum possible score) | NO addiction <30 No (%) | MILD 30-49 No (%) | MODERATE 50-79 No (%) | SEVERE 80-100 No (%) |
|--------------------------------------------|--------------------------|-------------------|------------------------|----------------------|
| Salience (25)                              | 19 (21.83%)              | 45 (51.72%)       | 21 (24.13%)            | 2 (2.29%)            |
| Excessive use (25)                         | 11 (12.64 %)             | 4 (4.59%)         | 69 (79.31%)            | 3 (3.44%)            |
| Neglect of work (15)                       | 30 (34.49%)              | 35 (40.22%)       | 21 (24.14%)            | 1 (1.15%)            |
| Anticipation (10)                          | 52 (59.77%)              | 17 (19.54%)       | 17 (19.54%)            | 1 (1.15%)            |
| Lack of control (15)                       | 17 (19.54%)              | 48 (55.17%)       | 60 (68.97 %)           | 2 (2.29%)            |
| Neglects social life (10)                  | 22 (25.29%)              | 36 (41.38%)       | 28 (32.18%)            | 3 (3.44%)            |
| Total scale (100)                          | 18 (21%)                 | 31 (36%)          | 36 (41 %)              | 2 (2%)               |
Table-III: Distribution of Behavioral patterns among medical doctors with and without IA.

| Behavioral pattern due to PIU | Internet Addiction scores | P-value |
|------------------------------|----------------------------|---------|
|                              | NO Addiction No (%) | MILD Addiction No (%) | MODERATE To SEVERE No (%) | |
| Excessive Time Expenditure   |                          |                      |                       | |
| Yes                          | 7 (8.04)      | 16 (18.4)    | 31 (35.6)   | 0.04 |
| No                           | 11 (12.6)     | 15 (17.2)    | 7 (8.04)    | |
| Ignorance of family & Responsibility | | | |
| Yes                          | 6 (18.4)      | 6 (18.4)     | 18 (20.7)   | 0.02 |
| No                           | 12 (13.8)     | 25 (28.7)    | 20 (23.0)   | |
| Emotional disturbances       |                          |                      |                       | |
| Yes                          | 4 (4.6)       | 21 (24.1)    | 29 (33.3)   | 0.03 |
| No                           | 14 (16.1)     | 10 (11.5)    | 9 (10.3)    | |
| Physical Disturbances        |                          |                      |                       | |
| Yes                          | 2 (2.3)       | 5 (5.7)      | 19 (21.9)   | 0.05 |
| No                           | 16 (18.4)     | 26 (29.9)    | 19 (21.9)   | |
| Preferred Virtual interaction|                          |                      |                       | |
| Yes                          | 3 (3.4)       | 15 (17.2)    | 32 (37.8)   | 0.02 |
| No                           | 15 (17.2)     | 16 (18.4)    | 6 (18.4)    | |
| Distraction                  |                          |                      |                       | |
| Yes                          | 2 (2.3)       | 13 (14.9)    | 27 (31.0)   | 0.03 |
| No                           | 16 (18.4)     | 18 (20.7)    | 11 (12.6)   | |

**DISCUSSION:**

The findings of this study indicate that prevalence of internet addiction is around 79% with 36% mild (who have minimal dependency on Internet), 41% moderate (most prime category as the chances of dependency are likely to escalate), 2% severe addiction (with severe social-personal consequences) and only 21% had no addiction or normal use. Paul reported prevalence of 48% with 35.8% mild, 11.1% moderate & 1.2% severe addiction in his study. A study conducted by Ahmer Z in Karachi reports 15% normal users, 65.5% mild, 18.5% moderate and 0.9% severe addiction making the overall burden of addiction to about 85%. A study conducted in India and Nepal reported IA prevalence of 84.6% & 56.5% respectively. Srijampana et al reported 11.8% moderate and 0.5% severe while Chaudhari reported overall prevalence of 58.87% with 7.47% moderate to severe addiction in general population. Ranganatha, Ratan, Chakraborti & Ching reported...
Internet Addiction is a recognizable disorder from the spectrum of Problematic Internet Use. This study reports the prevalence of internet addiction among health care professionals and burden of multiple behavioral patterns in association with IA, which is an emerging mental health concern.

CONFLICT OF INTEREST: All authors disclose no conflict of interest.

REFERENCES:

1. Baumeister RF, Leary MR. The need to belong: desire for interpersonal attachments as a fundamental human motivation. Psychological bulletin. 1995 May;117(3):497.https://doi.org/10.1037/0033-2909.117.3.497.

2. Smith A, Anderson M. Social media use in 2018: A majority of Americans use Facebook and YouTube, but young adults are especially heavy users of Snapchat and Instagram. Pew Research Center. 2018 Mar 1.

3. Wang Q. The autobiographical self in time and culture. Oxford University Press; 2013 Jul 26.

4. Stone CB, Wang Q. From conversations to digital communication: The mnemonic consequences of consuming and producing information via social media. Topics in cognitive science. 2019 Oct;11(4):774-93.https://doi.org/10.1111/tops.12369.

5. Haque M, Abubakar AR, Naina-Mohamed I, Saidin NB, Azhar NI. Internet Addiction a Global Concern: A Cross-Sectional Appraisal amongst Imminent Medical Doctors of National Defence University of Malaysia. Journal of Pharmacy Practice and Community Medicine. 2019;5(4).

6. Griffiths MD. The role of context in online gaming excess and addiction: Some case study evidence. International Journal of Mental Health and Addiction. 2010 Jan 1;8(1):119-25.https://doi.org/10.1007/s11469-009-9229-x.
7. Griffiths, M. D. (2012). Facebook addiction: Concerns, criticism, and recommendations: A response to Andreasen and colleagues. *Psychological Reports, 110*, 518–520. https://doi.org/10.2466/01.07.18.PR0.110.2.518-520.

8. KAYGUSUZ TÔ, OĞUZÖNCÜL AF, Erensoy A. Evaluation of Internet Addiction Level of Medical Faculty Students And Affecting Factors. Tip Eğitim Dünyası. 2019;18(55):5-17.

9. Block JJ. Issues for DSM-V: Internet addiction. *Am J Psych*. 2008;165(3):306-307. doi: 10.1176/appi.ajp.2007.07101556.

10. Echeburúa E, De Corral P. Adicción a las nuevas tecnologías y las redes sociales en jóvenes: un nuevo reto. Adiciones. 2010 Jun 1;22(2):91-6. https://doi.org/10.1016/j.addbeh.2009.09.003.

11. Kuss DJ, Griffiths MD. Online social networking and addiction—a review of the psychological literature. *International journal of environmental research and public health*. 2011 Sep;8(9):3528-52.

12. Marino, C., Finos, L., Vieno, A., Lenzi, M., & Spada, M. M. (2017). Objective Facebook behaviour: Differences between problematic and non-problematic users. *Computers in Human Behavior*, 73, 541–546.https://doi.org/10.1016/j.chb.2017.04.015.

13. Marino, C., Gini, G., Vieno, A., & Spada, M. M. (2018). A comprehensive meta-analysis on problematic Facebook use. *Computers in Human Behavior*, 83, 262–277. https://doi.org/10.1016/j.chb.2018.02.009.

14. Holden C. Behavioral addictions debut in proposed DSM-V: doi: 10.1126/science.327.5968.935.

15. Young KS. Internet addiction: symptoms, evaluation and treatment. Innovations in clinical practice: A source book. 1999;17(17):351-2.

16. Morahan-Martin J, Schumacher P. Loneliness and social uses of the Internet. Computers in human behavior. 2003 Nov 1;19(6):659-71.

17. Aggarwal Sumit S, Ambalkar Deepti D, Kale Kalpana M, AswarNandkishav R, Bhatule Prakash R. Pattern of Internet Use Among Medical Students; A Cross Sectional Study. Asian Journal of science and technology. 2015 Apr;6(4):1285-8.

18. Sato T. Internet addiction among students: Prevalence and psychological problems in Japan. *Japan Medical Association Journal*. 2006 Jul;49(7/8):279.

19. Koehler N, Vujovic O, McMenamin C. Healthcare professionals' use of mobile phones and the internet in clinical practice. *Journal of mobile technology in medicine*. 2013 Mar 1;2(1):3-13.

20. Teong KV, Ang MCH. Internet Use and Addiction among Students in Malaysian Public Universities in East Malaysia: Some Empirical Evidence. *J Manag Res*. 2016;8(2):31-47.

21. Ahmed I, Qazi TF. Deciphering the social costs of Social Networking Sites (SNSs) for university students. *Afr J Bus Manage*. 2011;5(14):5664-5674. doi: 10.5897/AJBM11.031.

22. Ahmer Z, Tanzil S. Internet addiction among social networking sites users: emerging mental health concern among medical undergraduates of Karachi. *Pak J Med Sci*. 2018;34(6):1473-1477. doi: https://doi.org/10.12669/pjms.346.15809.

23. Young K. Net Addiction. The Center for Internet Addiction. Your source since 1995. [Cited 2009]. Available from: http://netaddiction.com/kimberly-young/.

24. Caplan SE. Preference for online social interaction: A theory of problematic Internet use and psychosocial well-being. *Communication research*. 2003 Dec;30(6):625-48.

25. Zahavadiya D, Joshi N, Thakrar D, Mitra A,
Kanabar B, Oza J. Evaluation of internet addiction status and effects among medical students. Int J Community Med Public Heal. 2016;3(6):1568–72.

28. Daniel P. Pattern of internet use and prevalence of internet addiction among interns of a medical college in Kerala. Int J Community Med Public Health 2019;6:1928-32.

29. Pramanik T, Sherpa MT, Shrestha R. Internet addiction in a group of medical students: a cross sectional study. Nepal Med Coll J. 2012;14(1):46-48.

30. Paul AV, Ganapathi RC, Duraimurugan K, Abirami M, Reji E. Internet Addiction and Associated Factors: A Study Among College Students In South India. IJMHS. 2015;5(3):121-125. doi: 10.15520/ijmhs.2015.vol5.iss3.72.121-125.

31. Chaudhari B, Menon P, Saldanha D, Tewari A, Bhattacharya L. Internet addiction and its determinants among medical students. Ind Psych J. 2015;24(2):158-162. doi:10.4103/0972-6748.181729.

32. Raju Srijampana V, Endreddy AR, Prabhath K, Bhagawan R. Prevalence of internet addiction among medical students. Med J Dr DY Patil Univ. 2014;7(6):709–13.

33. Chaudhari B, Menon P, Tewari A, Bhattacharya L, Saldanha D. Internet addiction and its determinants among medical students. Ind Psychiatry J. 2015;24(2):158-62.

34. Ratan S, Mgims G, Wardha S, Gedam SR. A Study Internet Addiction Among Medical Students from Central India. JDMIMS U. 2016;11(2):233-8.

35. Chakraborti A, Ray P, Islam M, Mallick A. Medical undergraduates and pathological internet use: Interplay of stressful life events and resilience. J Heal Spec. 2016;4(1):56.

36. Ching SM, Awang H, Ramachandran V, Lim SMS, Sulaiman WAW, Foo YL, et al. Prevalence and factors associated with internet addiction among medical students - A cross-sectional study in Malaysia. Med J Malaysia. 2017;72(1):7–11.

37. Hormes JM, Kearns B, Timko CA. Craving Facebook? Behavioral addiction to online social networking and its association with emotion regulation deficits. Addiction. 2014;109(12):2079-2088.doi:10.1111/add.12713.

Authors’ Contribution:

Marium Sohail: Writing of manuscript, data collection and analysis, final approval of manuscript.

Haris Rauf: Data collection, statistical analysis and literature search.

Tayyeba Iftikhar Mirza: Data collection and analysis, proof reading of article.

Rabia Ashfaq: Help in data collection analysis and final draft of study.

Anbreen Aziz: Help in data collection analysis and final draft of study.

Hasan Ibrahim: Help in data collection and study design.

“WHEN THE WORLD PUSHES YOU TO YOUR KNEES, YOU'RE IN THE PERFECT POSITION TO PRAY”

Hazrat Ali (Karmulha Wajhay)