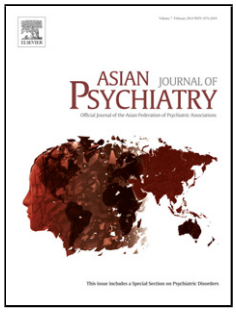
Accepted Manuscript



Title: The assessment of internet addiction in Bangladesh: Why are prevalence rates so different?

Author: M.A. Mamun

PII: S1876-2018(19)30013-9
DOI: https://doi.org/10.1016/j.ajp.2019.01.017
Reference: AJP 1620

To appear in:

Author: Mark D. Griffiths

PII: S1876-2018(19)30013-9
DOI: https://doi.org/10.1016/j.ajp.2019.01.017
Reference: AJP 1620

To appear in:

Received date: 3 January 2019

Please cite this article as: Mamun MA, Griffiths MD, The assessment of internet addiction in Bangladesh: Why are prevalence rates so different?, *Asian Journal of Psychiatry* (2019), https://doi.org/10.1016/j.ajp.2019.01.017

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Letter to the editor:

The assessment of internet addiction in Bangladesh: Why are prevalence rates so different?

M. A. Mamun[1, 2] and Mark D. Griffiths[3]

[1] Founder & Director, Undergraduate Research Organization, Dhaka, Bangladesh
[2] Department of Public Health & Informatics, Jahangirnagar University, Savar, Dhaka, Bangladesh
[3] Psychology Department, Nottingham Trent University, Nottingham, UK.

Corresponding Author

Mark D. Griffiths
Distinguished Professor of Behavioural Addiction, Psychology Department, Nottingham Trent University, 50 Shakespeare Street, Nottingham, NG1 4FQ, UK

E-mail address: mark.griffiths@ntu.ac.uk

Letter to the editor: The assessment of internet addiction in Bangladesh: Why are prevalence rates so different?

Highlight: The present communication provides a brief overview of internet addiction studies in Bangladesh and highlights reasons as to why prevalence rates appear to be so different.

Keywords: problematic internet use; internet addiction; excessive internet use; Bangladesh; prevalence rates

Over the past two decades, internet use has grown substantially and has become an integral part of individuals' daily life with many positive consequences. Despite the positive effects, excessive and uncontrolled internet use has been associated with core symptoms of addiction. Internet addiction (IA) has been defined as excessive or poorly controlled preoccupations, urges, and/or behaviors regarding internet access that leads to physical as well as mental impairment or distress (Shaw & Black, 2008). Furthermore, it also can be defined as a (non-chemical (i.e., behavioral addiction) that involves human-machine interaction (Cerniglia et al., 2017).

To date, research examining IA has applied many different screening instruments including (but not limited to) the Internet Behavior and Attitudes Scale, Internet Addiction Test (IAT), Internet Addictive Behavior Inventory, Diagnostic Questionnaire for Internet Addiction, Compulsive Internet Use Scale, Problematic

ACCEPTED MANUSCRIPT

Internet Use, and the Internet Use Disorder Scale (Cerniglia et al., 2017; Kuss et al., 2014; Shaw & Black, 2008). These instruments have been developed to assess IA and its equivalents, although none of these have emerged as the 'gold standard' instrument in assessing IA (Cerniglia et al., 2017; Shaw & Black, 2008).

Here, we compare and evaluate the four Bangladeshi studies (to date) that have reported the prevalence of IA. More specifically, we briefly examine the instruments used, the cutoff score applied, and other associated criteria for IA assessment. The prevalence rates of IA among different Bangladeshi samples have been reported to be between 4% and 49.7% using the IAT (see Table 1). Recent studies from other Asian countries have reported prevalence rates of 17% ('problematic internet use') in Delhi, India (N=6291 students; Balhara et al., 2018), 0.8% ('severe internet addiction') in Southern India (N=1763 medical students; Anand et al., 2018), 8.2% ('moderate internet addiction'; no severe cases) in Northern India (N=1721 doctors; Grover et al., 2019), 9.2% ('at-risk internet addiction'; no severe cases) in Southern India (N=310 workplace employees; Shrivastava et al., 2018) and 0.6% ('severe internet addiction') in Chiang Mai, Thailand (N=324 medical students; Simcharoen et al., 2018). Worldwide, rates of problematic internet use and/or IA have reported between 4.2% and 26.8% when utilizing different assessment instruments and cutoff scores (Vigna-Taglianti et al., 2017).

Consequently, it can be seen that the prevalence rates found in Bangladesh are broadly similar to those found in both Asian countries and those worldwide (Uddin et al., 2016). With increasing internet penetration in Bangladesh, the rate of excessive (but not necessarily problematic) internet use among university students have ranged between 24% and 79.4% using the IAT (Islam & Hossin, 2016; Karim & Nigar, 2014; Uddin et al., 2016) compared to 67% among high school students using the Internet Addiction Survey (Afrin, Islam, Rabbiand, & Hossain, 2017).

There are many reasons why the prevalence rates might have been so varied in Bangladesh and elsewhere. In the four Bangladeshi studies, one was conducted in Chittagong (Afrin et al., 2017), whereas the other three were conducted in Dhaka. However, the recruitment methods and cutoff scores (even when using the same instruments) were different from each other (Afrin et al., 2017; Islam & Hossin, 2016; Karim & Nigar, 2014; Uddin et al., 2016). Islam and Hossin (2016) and Uddin et al. (2016) used the original version of IAT, whereas the Bangla version of IAT was used by Karim and Nigar (2014). Karim and Nigar classed 34.3% as moderate Internet users (scoring 36-62[out of 90] on the IAT) with 1.7% as excessive users (scoring over 62 on the IAT). Islam and Hossin (2016) reported 24% as being problematic internet users using a cut-off value of 50 on the IAT. Uddin et al. (2016) did not report the total sample's prevalence, just the gender breakdown. Using the IAT, they reported 47.7% of male and 44.5% female students as having severe IA (see Table 1 for other prevalence rates relating to less problematic use). Afrin et al. (2017) adopted a completely different assessment tool (i.e., Internet Addiction Survey) consisting of a dichotomous yes/no responses and reported that two-thirds of their participants were excessive internet users comprising both severely and moderately addicted to the internet (67%). It should also be noted that all the studies to date have used small self-selected convenience samples (ranging from 177-573 participants) in just two Bangladeshi cities and that these factors comprise the most obvious reasons to the difference in IA prevalence rates. Similar limitations have been reported in studies conducted outside of Bangladesh (Kuss et al., 2014).

The prevalence rates of aforementioned Bangladeshi studies were varied and difficult to make meaningful comparisons. The IAT comprises six core criteria of behavioral addiction, namely salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse (Griffiths, 1996) whereas the Internet Addiction Survey does not. This leads to problems in comparing outcomes with studies utilizing the IAT. Among the three IAT studies, all used different cutoffs and scoring, also making direct comparison between studies difficult. While the current studies all surveyed older-aged students mainly in Dhaka (arguably providing some sort of consistency between study populations), future studies also need to sample other Bangladeshi groups and populations. Future studies in Bangladesh (and elsewhere) need to begin surveying

ACCEPTED MANUSCRIPT

nationally representative samples using standardized contemporary instruments if the true prevalence rates of problematic internet use are ever to be confidently known.

Table 1: Comparison of Bangladeshi studies examining internet addiction prevalence

Authors	**Afrin et al.** (2017)	**Uddin et al.** (2016)	**Islam & Hossin** (2016)	**Karim & Nigar** (2014)
Study location	Chittagong	Dhaka	Dhaka	Dhaka
Study population	High school students	University students	University students	University students
Sample size	279	475	573	177
Assessment tool	Internet Addiction Survey	Internet Addiction Test	Internet Addiction Test	Bangla Internet Addiction Test
Scale response	Yes/No	5-point Likert type scale ranging from 1 (rarely) to 5 (always)	5-point Likert type scale ranging from 1 (rarely) to 5 (always)	5-point Likert type scale ranging from 1 (rarely) to 5 (always)
Number of scale items	9	20	20	18
Cutoff scores	<3 = normal internet user 4 to 6 = moderate internet user ≤7 = severe user	≤30 = normal internet user 31–49 = mild internet user 50-79 = moderate internet user ≥80 = severe or excessive internet user	≥50 = moderate, excessive, or problematic internet user	<36 = minimal internet user 36-62 = moderate internet user >62 = excessive internet user
Main findings	2.5% severely addicted to the internet 64.9% moderately addicted to the internet	47.7% male and 44.5% female students severely addicted to the internet 27.1% male and 33.9% female students moderately addicted to the internet 20.7% male and 7.7% female students mildly addicted to the internet	24% problematic internet users	63.95% minimal internet users 34.3% moderate internet users 1.7% excessive internet users

Financial disclosure: The authors involved in this research communication do not have any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work.

Ethic statement: Not applicable

Compliance with ethical standard: There was no conflict of interest in relation to present work. Informed consent is non-applicable to this work.

Conflict of interest: none

Disclosure of potential conflict of interest: None

ACCEPTED MANUSCRIPT

Conflict of interest: The authors of the paper do not have any conflict of interest. The authors involved in this research communication do not have any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work.

Statement of Human rights: Not applicable

Acknowledgments: The authors would like to thank Jannatul Mawa Misti for their support in the writing of this letter.

The paper has address the following headings:

- Authorship of the communication: The authors made a significant contribution to the conception, design, execution, or interpretation of the reported communication.
- Originality and plagiarism: It was the authors' original work and other authors' work has been appropriately cited or quoted.
- Data access and retention: Not applicable
- Multiple, redundant or concurrent publication: The communication has not been submitted elsewhere for publication
- Acknowledgement of sources: Not applicable. No funding agency for this communication
- Disclosure and conflicts of interest: Noted above
- Fundamental errors in published works: I will report to the editor the case of any errors
- Reporting standards: It was followed
- Hazards and human or animal subjects: Not applicable
- Use of patient images or case details: Not applicable

References

Afrin, D., Islam, M.-U., Rabbiand, F., & Hossain, A. (2017). The school-level factors associated with internet addiction among adolescents: a cross-sectional study in Bangladesh. *Journal of Addiction and Dependence*, *3*(2), 170–174.

Anand, N., Cherian, A. V, Thomas, C., Thomas, C., Vasuki, P., & Young, K. (2018). Internet use behaviors, internet addiction and psychological distress among medical college students: A multi centre study from South India. *Asian Journal of Psychiatry*, *37*, 71-77.

Balhara, Y. P. S., Harshwardhan, M., Kumar, R., & Singh, S. (2018). Extent and pattern of problematic internet use among school students from Delhi: Findings from the cyber awareness programme. *Asian Journal of Psychiatry*, *34*, 38–42.

Cerniglia, L., Zoratto, F., Cimino, S., Laviola, G., Ammaniti, M., & Adriani, W. (2017). Internet Addiction in adolescence: Neurobiological, psychosocial and clinical issues. *Neuroscience & Biobehavioral Reviews*, *76*, 174–184.

Griffiths, M. (1996). Behavioural addiction: an issue for everybody? *Journal of Workplace Learning*, *8*(3), 19–25.

Grover, S., Sahoo, S., Bhalla, A., & Avasthi, A. (2019). Problematic internet use and its correlates among resident doctors of a tertiary care hospital of North India: A cross-sectional study. *Asian Journal of Psychiatry*, *39*, 42–47.

Islam, M. A., & Hossin, M. Z. (2016). Prevalence and risk factors of problematic internet use and the associated psychological distress among graduate students of Bangladesh. *Asian Journal of Gambling Issues and Public Health*, *6*(1), 1-11.

Karim, A. K. M. R., & Nigar, N. (2014). The internet addiction test: Assessing its psychometric properties

ACCEPTED MANUSCRIPT

in Bangladeshi culture. *Asian Journal of Psychiatry*, *10*, 75–83.

Kuss, D. J., Griffiths, M. D., Karila, L. & Billieux, J. (2014). Internet addiction: A systematic review of epidemiological research for the last decade. *Current Pharmaceutical Design, 20,* 4026-4052.

Shaw, M., & Black, D. W. (2008). Internet addiction. *CNS Drugs*, *22*(5), 353–365.

Shrivastava, A., Sharma, M. K., & Marimuthu, P. (2018). Internet addiction at workplace and it implication for workers life style: Exploration from Southern India. *Asian Journal of Psychiatry*, *32*, 151–155.

Simcharoen, S., Pinyopornpanish, M., Haoprom, P., Kuntawong, P., Wongpakaran, N., & Wongpakaran, T. (2018). Prevalence, associated factors and impact of loneliness and interpersonal problems on internet addiction: A study in Chiang Mai medical students. *Asian Journal of Psychiatry, 31*, 2–7.

Uddin, M. S., Al Mamun, A., Iqbal, M. A., Nasrullah, M., Asaduzzaman, M., Sarwar, M. S., & Amran, M. S. (2016). Internet addiction disorder and its pathogenicity to psychological distress and depression among university students: A cross-sectional pilot study in Bangladesh. *Psychology*, *7*(08), 1126–1137.

Vigna-Taglianti, F., Brambilla, R., Priotto, B., Angelino, R., Cuomo, G., & Diecidue, R. (2017). Problematic internet use among high school students: Prevalence, associated factors and gender differences. *Psychiatry Research*, *257*, 163–171.

ACCEPTED MANUSCRIPT