Cross-sectional study of Facebook addiction in a sample of Nepalese population [version 2; peer review: 2 approved]

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Abstract

Background: Facebook addiction is said to occur when an individual spends an excessive amount of time on Facebook, disrupting one's daily activities and social life. The present study aimed to find out the level of Facebook addiction in the Nepalese context and briefly discuss the issues associated with its unintended use.

Methods: A descriptive cross-sectional study was conducted in the Department of Forensic Medicine of Lumbini Medical College. The study instrument was the Bergen Facebook Addiction Scale typed into a Google Form and sent randomly to Facebook contacts of the authors. The responses were downloaded in a Microsoft Excel spreadsheet and analyzed using Statistical Package for Social Sciences version 16.

Results: The study consisted of 103 Nepalese participants, of which 54 (52.42%) were males and 49 females (47.58%). There were 11 participants (10.68%) who had more than one Facebook account. It was observed that 8.73% (n=9) to 39.80% (n=41) were addicted to Facebook.

Conclusion: When used properly Facebook has its own advantages. Excessive use is linked with health hazards including addiction and dependency. Students who engage more on Facebook may have less time studying, leading to poor academic performance. People need to be made aware of the issues associated with the misuse of Facebook.

Keywords

Addiction, Crime, Internet, Nepal, Social Networking, Facebook
Corresponding author: Alok Atreya (alokraj67@hotmail.com)

Author roles: Atreya A: Conceptualization, Data Curation, Formal Analysis, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; Nepal S: Data Curation, Formal Analysis, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; Thapa P: Methodology, Supervision, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

Grant information: The author(s) declared that no grants were involved in supporting this work.

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Introduction

Founded on 4th February 2004 for communication limited to Harvard students, Facebook today is the most used social networking service (SNS) worldwide. There are 1.59 billion active Facebook users daily and 2.41 billion active Facebook users monthly as of June 2019. The primary motives of Facebook use are to communicate, collaborate and share content. With such growing popularity and billions of users, there has been a concern of behavioral addiction to this SNS. Facebook addiction is said to occur when an individual spends an excessive amount of time on Facebook over the internet, disrupting one’s daily activities and social life. If five hours or more is spent daily on Facebook then the person is said to be addicted to Facebook.

Excessive use of Facebook and other SNS is linked with health hazards including addiction and dependency. However, limited number of studies in this regard has made it a rarity in Nepalese context. The present study is therefore aimed to find out the level of Facebook addiction in a sample of Nepalese population and briefly discuss the issues associated with its unintended use.

Methods

A descriptive cross-sectional study was conducted in Department of Forensic Medicine of Lumbini Medical College after obtaining ethical approval from the Institutional Review Committee vide the letter IRC-LMC 01-G/019.

The Bergen Facebook Addiction Scale (BFAS) is a questionnaire that comprises of six core features of addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse. Each of the six-core features consists of three questions, making a total of 18 questions. The final BFAS retained one question for each core element of addiction. Only the scores for questions 1, 5, 7, 11, 13 and 16 determine the level of Facebook addiction. Each question is scored on a 5-point Likert scale using anchors of 1: Very rarely and 5: Very often. Higher scores indicate greater Facebook addiction.

Participants scoring 4 (often) or 5 (very often) in four out of six questions were considered to be addicted to Facebook. BASF has put forth two scoring schemes to determine Facebook addiction. As per a polythetic scoring scheme, Facebook addiction was determined by a liberal approach, where a score of 3 or more was observed in at least four of six items; whereas using a conservative approach, a score of 3 or above in all six items determined Facebook addiction by a monothetic scoring scheme.

Considering that there are around 1800 people in Lumbini Medical College including students, faculties and staffs, the sample size was calculated using the formula for finite population: \( n = \frac{N \times X}{X+(N-1)} \); taking a confidence level of 95% (Z-score=1.96) and margin of error of 10%, the sample size was calculated to be 92.

The BFAS was typed into a Google Form and reviewed by all the authors for any mistakes which were then corrected. The link was then shared among the medical and nursing students, doctors, nurses and other health care staff working at Lumbini Medical College Teaching Hospital (LMCTH) through Facebook messenger, WhatsApp and Viber with a request to share the link among their friends or colleagues who were enrolled with LMCTH and were Nepalese citizens (convenient sampling). The first part of the questionnaire consisted of a statement where it was explained that no financial or material gifts will be provided for completing the questionnaire. The survey did not collect any identifying information of any of the participants and the responses were anonymous. The second part of the questionnaire was a section on consent where the participants had an option to choose whether they voluntarily consented to participate or didn’t consent. The third part of the questionnaire was accessible only to those participants who consented in the second part. The survey didn’t continue for the participants who didn’t consent and the incomplete form submitted. The link was made active on 27 July, 2019. On August 30, 2019 a total of 108 responses were received and the link was disabled from receiving further responses. There were five responses which were incomplete so those were excluded from the study. The obtained responses were downloaded as a Microsoft Excel spreadsheet, which was then exported into SPSS v16 for analysis. Descriptive statistics such as frequency, percentage, mean and standard deviation were used to determine demographic characteristics of the respondents and Facebook addiction (see Underlying data).

Results

The study sample consisted of 103 participants, of which 54 (52.42%) were males and 49 females (47.58%). There were 11 participants (10.68%) who had more than one Facebook account (Table 1).

The majority of participants (n=41, 39.8%) responded that during the last year they often spent a lot of time thinking

| Facebook accounts | Male N (%) | Female N (%) | Total N (%) |
|-------------------|------------|-------------|-------------|
| One               | 46 (44.66) | 46 (44.66)  | 92 (89.32)  |
| More than one     | 8 (7.76)   | 3 (2.92)    | 11 (10.68)  |
| Total             | 54 (52.42) | 49 (47.58)  | 103 (100)   |

Table 1. Number of Facebook accounts of study participants.
about Facebook or planned use of Facebook. When asked if they felt an urge to use Facebook more and more, 35 participants (34.0%) felt they never felt such an urge. Only 16 (15.5%) responders used Facebook to forget about their personal problems during the last year. The present study showed that 23.3% of the responders (n=24) could not cut down their use of Facebook during the last year. When asked whether they became restless or troubled when prohibited from using Facebook, six participants (5.8%) responded that they often felt restless. In 21 participants (20.4%), their use of Facebook had a negative impact on their job/studies. The detailed responses of the participants are presented in Table 2 and Table 3.

There were ten participants (9.70%) who scored 4 or more in four questions. A 43-year-old male was among one of those seven participants who had multiple Facebook accounts and scored 5 in all the six questions. This was the maximum score one could get as per BFAS, which denotes this individual was severely addicted to Facebook use. As per the conservative approach there were only nine participants (8.73%) who were addicted to Facebook. When the liberal approach was used, there were 41 participants (39.80%) who were addicted to Facebook (Table 4).

Discussion
Although the popularity of Facebook is increasing daily, the fact that its use is prone to addiction cannot be denied. Many recent studies from around the world advocate the potential risk of addiction. There are various assessment tools and diagnostic criteria to investigate SNS addiction; however, BFAS is considered to have good psychometric properties. Facebook can be used for various purposes like instant messaging, video conferencing, gaming and shopping. Facebook is popular for its content sharing feature. The shared content may be news, personal blogs, pictures and videos, which can be educational, entertaining or explicit.

In a study conducted among postgraduate medical students in Southern India, it was observed that 26% of the participants were addicted to Facebook and 33% had the possibility of addiction. The study also concluded that loneliness influenced Facebook addiction.

A Nepalese study on Facebook use conducted among health science students of a private medical college showed that 98.2% were active Facebook users. The authors of the study concluded that 28.5% of the study participants were unable to reduce their time spent on Facebook and therefore were addicted. In contrast, the present study observed as little as 8.73% of participants addicted to Facebook use. Although the number may seem less, it still raises a concern over the use of SNS in Nepalese context. Excessive use of Facebook by students may lead to poor time management and less time studying, which would result in poor academic performance.

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### Table 2. Items in the questionnaire and responses of the participants (n=103).

| Items in the questionnaire                                      | Responses in 5-point scale N (%) |
|-----------------------------------------------------------------|----------------------------------|
| How often during the last year have you spent a lot of time thinking about Facebook or planned use of Facebook? | 10 (9.7) 10 (9.7) 42 (40.8) 28 (27.2) 13 (12.6) |
| How often in the last year have you felt an urge to use Facebook more and more? | 11 (10.7) 24 (23.3) 39 (37.9) 22 (21.4) 7 (6.8) |
| How often during the last year have you used Facebook in order to forget about personal problems? | 30 (29.1) 31 (30.1) 26 (25.2) 9 (8.7) 7 (6.8) |
| How often during the last year have you tried to cut down on the use of Facebook without success? | 22 (21.4) 30 (29.1) 27 (26.2) 16 (15.5) 8 (7.8) |
| How often during the last year have you become restless or troubled if you have been prohibited from using Facebook? | 42 (40.8) 37 (35.9) 18 (17.5) 3 (2.9) 3 (2.9) |
| How often during the last year have you used Facebook so much that it has had a negative impact on your job/studies? | 26 (25.2) 29 (28.2) 27 (26.2) 20 (19.4) 1 (1.0) |
Table 3. Items in the questionnaire and responses where the score is 4 or more (n=103).

| Items in the questionnaire                                                                 | Responses N (%) |
|------------------------------------------------------------------------------------------|-----------------|
| How often during the last year have you spent a lot of time thinking about Facebook or planned use of Facebook? | 41 (39.8)       |
| How often during the last year have you felt an urge to use Facebook more and more?     | 29 (28.2)       |
| How often during the last year have you used Facebook in order to forget about personal problems? | 16 (15.5)       |
| How often during the last year have you tried to cut down on the use of Facebook without success? | 24 (23.3)       |
| How often during the last year have you become restless or troubled if you have been prohibited from using Facebook? | 6 (5.8)         |
| How often during the last year have you used Facebook so much that it has had a negative impact on your job/studies? | 21 (20.4)       |

Table 4. Facebook addiction of the study participants (n=103).

| Facebook addiction | Gender N (%) | Total N (%) |
|-------------------|--------------|-------------|
|                   | Male         | Female      |              |
| Scored ≥4 in ≥4 items |              |              |              |
| (Conservative approach) |              |              |              |
| Scored ≥3 in all 6 items |              |              |              |
| Scored ≥3 in ≥4 items (Liberal approach) |              |              |              |

The present study is not without limitations. The study participants were chosen through searching the researcher’s Facebook friend list, and there is a possible sampling bias in our study. As the study participants were requested to share the link among the students and employees of LMCTH, we could not calculate the number people approached and the response rate. The responses were collected anonymously and no identifying information of the responder was recorded; it therefore cannot be known if multiple responses form a same person occurred. Three different approaches were used in the present study that showed a varied addiction rate in the same population. BFAS is based upon use of Facebook, but it doesn’t specify the type of addiction is to technology or content. The convenient sampling, age, gender and occupational imbalance of the present study therefore cannot be generalized to the population of Nepal as a whole.

Conclusions

Facebook addiction in the Nepalese context as per the present study was at least 8.73%, with a possibility a prevalence of addiction up to 39.80%. Complete abstinence from Facebook or any SNS is difficult to achieve as internet has become an integral part of our lives; however, in case of excessive use patients can be advised to control their use. Considering the high popularity of Facebook and other SNS sites in Nepal, it is evident that there is a huge need for future research in this regard.

Data availability

Underlying data

DRYAD: Cross-sectional study of Facebook addiction in a sample of Nepalese population. https://doi.org/10.5061/dryad.83bkj9p

Data are available under the terms of the Creative Commons Zero “No rights reserved” data waiver (CC0 1.0 Public domain dedication).
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Open Peer Review

Current Peer Review Status: ✔ ✔

Version 2

Reviewer Report 08 December 2020
https://doi.org/10.5256/f1000research.31035.r75720

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✔ Abhishek Das
Department of Forensic and State Medicine, Medical College, Kolkata, West Bengal, India

I have no further comments to make.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Forensic medicine, forensic psychiatry, medical education are my field of research.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 04 December 2020
https://doi.org/10.5256/f1000research.31035.r75721

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✔ Kishor Adhikari
1 Department of Community Medicine and Public Health, Chitwan Medical College, Bharatpur, Nepal
2 Himalayan Environment and Public Health Network (HEPHAN), Bharatpur, Nepal

Now it seems good. I am okay with the modifications made along with the clarifications made by the authors.
**Competing Interests:** No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

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**Version 1**

Reviewer Report 20 November 2020

https://doi.org/10.5256/f1000research.29737.r74539

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Abhishek Das
Department of Forensic and State Medicine, Medical College, Kolkata, West Bengal, India

The cross sectional study done is presented well with originality.

The Abstract reflects the major aspects of the main paper. However, the different approaches mentioned here needs a little elaboration. Inclusion of the keyword "Facebook" would be beneficial.

The Introduction properly reflects the background of study, but needs to highlight more on existing gap in literature. The **level of addiction** should be clarified clearly.

The Methods section is well written and can be replicated later by others. However the **convenience sampling** could have been improved by choosing the portion of general Nepali population attending hospital apart from only including those attached to LMCTH. Exactly how many participants approached (google form sent) was not mentioned clearly, so the **response rate** to BFAS in this study could not be calculated. The response to the SIX core features of the addiction was not mentioned in detail in Results section.

Two wrong representations of data noted:
1. 'BAFS' is to be replaced by **BFAS** in the first line of last paragraph of **methods** section.
2. In the description of Tables 2 & 3 on "who could not cut down their use of Facebook during the last year" the result should be n=24 without the % sign.

Overall, this is a well formulated and executed study with authentic results.

**Is the work clearly and accurately presented and does it cite the current literature?**
Yes

**Is the study design appropriate and is the work technically sound?**
Partly

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Partly

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Forensic medicine, forensic psychiatry, medical education are my field of research.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

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**Author Response 25 Nov 2020**

**Alok Atreya**, Lumbini Medical College, Palpa, Nepal

We would like to thank the learned reviewer for the detailed review and positive comments on our manuscript. Based upon the comments the following changes are made:

Comment 1: *The cross-sectional study done is presented well with originality.*

**Response:** Thank you for the comment.

Comment 2: *The Abstract reflects the major aspects of the main paper. However, the different approaches mentioned here needs a little elaboration.*

**Response:** The different approaches that were used for e.g. polythetic and monothetic scoring scheme are detailed in the methods and results section so it was removed from here to avoid confusion. The sentence “When different approaches were applied it was observed that 8.73% (n=9) to 39.80% (n=41) were addicted to Facebook.” is reframed to “It was observed that 8.73% (n=9) to 39.80% (n=41) were addicted to Facebook.”

Comment 3: *Inclusion of the keyword “Facebook” would be beneficial.*

**Response:** Facebook is added as a keyword.

Comment 4: *The Introduction properly reflects the background of study, but needs to highlight more on existing gap in literature. The level of addiction should be clarified clearly.*

**Response:** The last paragraph is elaborated as:
“Excessive use of Facebook and other SNS is linked with health hazards including addiction and dependency. However, limited number of studies in this regard has made it a rarity in Nepalese context. The present study is therefore aimed to find out the level of Facebook addiction in a sample of Nepalese population and briefly discuss the issues associated with its unintended use.”

Comment 5: The Methods section is well written and can be replicated later by others. However the convenience sampling could have been improved by choosing the portion of general Nepali population attending hospital apart from only including those attached to LMCTH.
Response: We are grateful for the suggestion and will keep it in mind for future works. The study population for the present study are students (medical and nursing) and employees of Lumbini Medical College, Palpa. Although, the Nepalese students studying in the college are from different parts of the country and so are the employees; we have used the term ‘sample of Nepalese population’.

Comment 6: Exactly how many participants approached (google form sent) was not mentioned clearly, so the response rate to BFAS in this study could not be calculated.
Response: This was one of the limitations of the study. We have added the following sentence as limitation: “As the study participants were requested to share the link among the students and employees of LMCTH, we could not calculate the number people approached and the response rate.”

Comment 7: The response to the SIX core features of the addiction was not mentioned in detail in Results section.
Response: Table 2 and Table 3 detail the responses on the six core features of addiction.

Comment 8: Two wrong representations of data noted:
'BAFS' is to be replaced by BFAS in the first line of last paragraph of methods section.
In the description of Tables 2 & 3 on "who could not cut down their use of Facebook during the last year" the result should be n=24 without the % sign.
Response: Corrected.

Comment 9: Overall, this is a well formulated and executed study with authentic results.
Response: Thank you.

Competing Interests: No competing interests were disclosed.
Kishor Adhikari

1 Department of Community Medicine and Public Health, Chitwan Medical College, Bharatpur, Nepal
2 Himalayan Environment and Public Health Network (HEPHAN), Bharatpur, Nepal

- Title: The authors have taken samples from only one medical college of Nepal, so, it may not look correct to state as "Nepalese population".
- Method: There is no sampling technique as "Convenient random sampling". It is better to keep as convenient sampling.
- Conclusion: Don't keep many things which are not the findings of your research.

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1. Jha RK, Shah DK, Basnet S, Paudel KR, et al.: Facebook use and its effects on the life of health science students in a private medical college of Nepal. *BMC Res Notes*. 2016; 9: 378 [PubMed Abstract](https://pubmed.ncbi.nlm.nih.gov/27939898/) | [Publisher Full Text](https://bmcresnotes.biomedcentral.com/1756-0500/9/378)

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

If applicable, is the statistical analysis and its interpretation appropriate?
Partly

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Partly

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Non communicable disease risk factors, health system

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.
Alok Atreya, Lumbini Medical College, Palpa, Nepal

We would like to thank the learned reviewer for the detailed review and positive comments on our manuscript. Based upon the comments the following changes are made:

Comment 1 Title: The authors have taken samples from only one medical college of Nepal, so, it may not look correct to state as "Nepalese population".
Response: The study population for the present study are students (medical and nursing) and employees of Lumbini Medical College, Palpa. The Nepalese students studying in the college are from different parts of the country and so are the employees. However, the whole Nepalese population cannot be represented by this study we have used the term ‘sample of Nepalese population’ in the title.

Comment 2 Method: There is no sampling technique as "Convenient random sampling”. It is better to keep as convenient sampling.
Response: Changed as instructed.

Comment 3 Conclusion: Don’t keep many things which are not the findings of your research.
Response: Conclusion is shortened and only the relevant findings are included.

Competing Interests: No competing interests were disclosed.

Comments on this article

Version 1

Reviewer Response 03 Dec 2020
Kishor Adhikari, Chitwan Medical College, Bharatpur, Nepal

I had mistakenly suggested the reference (Jha et al.) in my review as it was one of the studies with similar nature to my comment without noticing the same reference in the list. Apologies for the inconvenience that occurred.

Competing Interests: NO competing interest.
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