Social Networking (SNS) Addiction among University Students: A Literature Review and Research Directions

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

Review Article

ABSTRACT

The main objective of this literature review is to provide empirical and conceptual insight into SNS addiction by exploring potential SNS addiction, examining the personalities of SNS addicted users, and exploring SNS addiction's negative consequences on well-being, social and academic life. The results revealed that there was no concordance among previous studies on which gender is the most likely to be addicted to SNS. Moreover, the addiction symptoms linked with SNS addiction were cognitive and behavioral salience, conflict with other activities, euphoria, loss of control, withdrawal, and relapse/reinstatement. Previous SNS's studies determined a high prevalence rate of addiction to SNS among university students. The review revealed that 18.4% of the reviewed studies agreed that SNS addiction is significantly and positively related to depression and Neuroticism. Although 78% of the reviewed previous studies have highlighted several potential negative correlations of extensive SNS usage and addiction on university student well-being, social, and academic life, however, these studies gave more attention to the negative impact on students' academic performance.

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1. INTRODUCTION

There is no doubt that SNS have gained wider acceptability, usability and have probably become the most important communication tool among university students [1,2,3]. Many researchers have tried to identify SNS's addiction. However, [4] claimed that it is different from other online addictions. They gave a reasonable explanation for the formation of SNS addiction, and emphasize the mediating role of SNS use habit in addition process. They contend that those who frequently engage in SNS are poor at socializing in real life. [5] defined SNS's addiction as "being overly concerned about SNS, to be driven by a strong motivation to log on to or use SNS, and to devote so much time and effort to SNS that it impairs other social activities, studies/job, interpersonal relationships, and/or psychological health and well-being", p. 4054. Thus, SNS were viewed as having bridged the gap in the communication that had already existed. Within the SNS, Facebook, Twitter and others are gaining benefaction. These websites and social forums are a way of communicating directly with other people socially. SNS have the potential to influence decision-making in a very short time, regardless of the distance. SNS can now be accessed via multiple platforms, including mobile devices; hence, they become some of the most popular online concourse for youngsters, especially university students.

2. THE CURRENT STUDY

With the growth in popularity of SNS, the world has witnessed a significant number of studies explaining the reasons why individuals adopt and use SNS [6,7,8,9,10,11,12,13]. However, fewer studies have focused on the problematic use of SNS and its negative impact. To date, only a limited number of empirical studies on addiction to SNS have been conducted and published [e.g. 4,12,13,14,15,16,17,18,19,20,21,22]. My review of prior literature showed that there are very few published papers examining the SNS addiction and most of these studies tended to be exploratory in nature, and only a limited number of studies provided a theoretical explanation of SNS's addiction. Therefore, the main objectives of this literature review is to provide empirical and conceptual insight into SNS addiction by examining personalities of SNS addicted users, and exploring SNS addiction's negative consequences.

3. METHODS

The methodology is composed of three stages. The first stage shows the research of works related to SNS's addiction in selected databases of scientific journals. I focused on papers published by academic journals published between 2012 and 2019, and international conference proceedings we considered to be
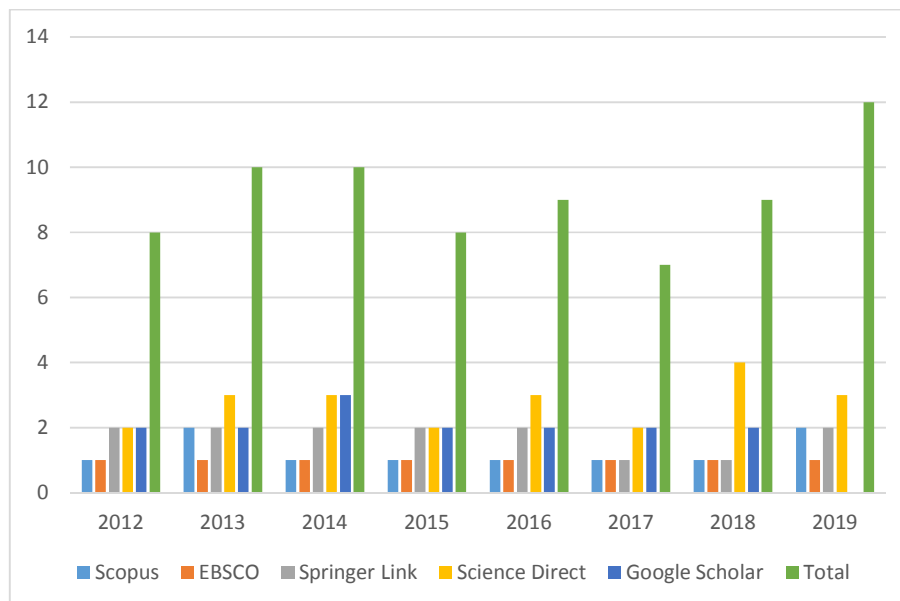

Fig. 1. Selected articles and databases according to publication year

reliable and worthy. The main keywords employed were: SNS addiction, SNS addicts' personality, SNS addiction negative consequences and university students. The works not directly related to SNS or not suitable for the study were discarded. However, it worth noting that I included studies that related to Facebook and Twitter addiction because these websites are the most SNS websites using around the word especially among university students.The second stage concerned the classification of these works in the different fields of knowledge according to the research objectives. Finally, the third stage of the methodology involved the report of detailed literature review. For this review, four online academic research databases, Scopus, EBSCO, Springer Link and Science Direct, were scanned for relevant articles. In order to increase the reliability of the search results and ensure that articles from various scholarly fields will be included, the search was repeated with Google Scholar, which resulted in some new included articles. All searches were narrowed down to empirical studies reported in peer-reviewed full conference papers and journal articles. As a result, a total of 73 articles meeting the inclusion criteria were selected for the review. The selected articles were drawn from the following databases in the years indicated in Fig. 1.

4. RESULTS OF REVIEWING THE LITERATURE

4.1 SNS Addiction among University Students

4.1.1 SNS addiction symptoms and risk factors

Previous studies have focused on the factors of the addiction. In a literature review, [23] addressed the specific risk factors for SNS's addiction among young people. They claimed that those people addicted to using SNS experience symptoms similar to those who suffer from addictions to substances or other behaviors. However, [19] identified SNS addiction risk factors using Griffiths' six components that determine behavioral addiction and indicated that addicted users suffers from three components; tolerance, salience and relapse. Likewise, [10] suggested that compulsive use of Facebook is mainly determined by negative reinforcement motive (i.e., feeling of withdrawal), but not the

positive reinforcement motive (i.e., need for mood alteration). Similarly, [28] developed a Facebook Addiction Scale (FAS) to assess addictive Facebook usage, comprising of eight items related to the core components of addiction. These were cognitive and behavioral salience, conflict with other activities, euphoria, loss of control, withdrawal and relapse/reinstatement. Moreover, they indicated that time spent on Facebook varied between 10 minutes and 70 hours a week with a mean of 7 hours a week. However, [23] focused on two dimensions of SNS's addiction factors: frequency of use (i.e., how often people use SNS) and amount of use (i.e., how much time people spend on SNS). He found that the time spent on SNS was the best way of predicting SNS addiction. According to [29], those who looked for a sense of belongingness on SNS appeared to be at risk for developing an addiction to SNS. [97] Found that SNS addiction was negatively associated with the students' mental health and academic performance and that the relation between social media addiction and mental health was mediated by self-esteem.

4.1.2 SNS prevalence rate

Interestingly, some previous studies determined the prevalence rate of SNS addiction among university students. [24] classified 24% of the college students as addicted. Likewise, [21] indicated that 34% of the students were classified as addicted. [17] carried out a study of SNS's behavior among Nigerian university students aged 16–30 years. They indicated that 27% of the students strongly agreed that they were addicted to SNS.

However, as Facebook showed the most SNS usage, many studies investigated the prevalence rate of Facebook addiction among university students. In this regard [25] showed that 47% of the students were addicted to Facebook. [35] reported that the prevalence rates of Facebook addiction among Nigerian university undergraduates was 1.6 %. According to [3] SNS addiction has a high prevalence rate among college students in Singapore. The prevalence rates of SNS, food and shopping addiction were 29.5%, 4.7% and 9.3% respectively for the total sample. [26] revealed that three hundred thirty-eight (87.1%) students used SNS and spent an increased amount of time on these networks. Addiction was seen in 70.7% and was more common in the age group of 17 years and above.

4.1.3 Gender differences in SNS addiction

[20] indicated that males reported more SNS friends and were more likely to play online games than females, who were more likely to upload self-photos and update their status. Likewise, [27] found that gender played an important role in predicting SNS addiction. In addition, [33] concluded that there is a significant difference of use of SNS between male and female students. Male students are more inclined towards to use these sites than female students. [54] found gender and age difference in SNS use among users. [41] found that SNS addiction was higher in male students than in female students. Furthermore, [42] indicated that gender and educational levels appear to be important factors explaining some of the variation in students' SNS use.

4.2 The Personalities of SNS Addicted Users

A number of personality traits appear to be associated with the excessive use of SNS. Studies have shown a connection between the individual personality of the user and the way he or she behaves online. [8] found that problematic SNS usage is significantly and positively related to depression and Neuroticism, while negatively associated with Agreeableness. A group of studies used Big-Five Personality to investigate SNS user's behaviour. Likewise, [50] found that extraverts were more likely to use the communicative function of SNS including status update, comment, and adding more friends. However, [19] indicated that external Locus of Control predicts all three forms of Internet abuse. The results suggested that factors predicting some forms of Internet abuse might not predict other forms of Internet abuse. Moreover, [93] found that individuals high in extraversion and openness to experience use SNS more frequently.

A set of studies explored the relationship between personality traits and SNS behavior. [8] indicated that different groups of users demonstrated distinct patterns of SNS use. Specifically, undergraduates used the profile service more than the community service, while graduates used the community more than the profile service. Furthermore, [6] found a strong connection between personality and SNS usage behavior. The results revealed that extraverts and people open to experiences were members

of significantly more groups on SNS use socializing functions more and have more SNS friends than introverts. Likewise, [19] claimed that the relationship between the personalities of users and their behavior on SNS was not strong. However, they indicated that individuals with large offline social networks, who are more extroverted, and who have higher self-esteem, use SNS for social enhancement. However, [23] indicated that extroverted and unconscientious individuals reported higher levels of both SNS use and addictive tendencies. Similarly, [8] explored the factors influencing SNS addiction tendency among university students. The findings indicated that SNS addiction tendency showed a significant correlation with loneliness and secure attachment tendency. Finally, the literature review revealed the similarities and differences between the previous studies and summarizes SNS studies related to addicts personality Table 1.

4.3 SNS Addiction Impacts on the Students' Academic and Social/ Psychological Well-being

4.3.1 SNS addiction impacts on the students' academic performance

Although many previous studies have highlighted potential negative correlation of extensive SNS usage and addiction, they focused on its impact on student's academic performance. Many studies examined whether student's academic performance was impacted by SNS or not. [30] revealed that there is no linear relationship between SNS usage and academic performance. [23] indicated that Facebook has positive effects on the academic performance of undergraduate students, the students gain a lot of information from it and easily communicate with each other's, interaction with peers, perceived usefulness, study notes or share information about research resources etc. [30] revealed that the usage of social media in Pakistan has a negative influence on a student's behavior as compared to positive aspects. [14] found a negative and significant relationship between students' addiction to SNS and their academic performance. [94] indicated that university students have very little exposure to the use of SNS content in relation to their academic life. In contrast, [20] analysed the impact of SNS on student's academic performance in Malaysia. Using a conceptual approach, the study discovered that more students prefer the use of Facebook and Twitter

Table 1. An overview of previous SNS studies related personalities of SNS addicted users (n=38)

Author(s)	Results	%
[6,23]	A strong connection was found between personality and SNS behavior. The personality factors significantly predicted both level of SNS use and addictive tendency but did not explain a large amount of variance in either outcome measure.	5.3
[2,8,50,55,59, 96]	SNS addiction tendency showed a significant correlation with loneliness and secure attachment tendency.	15.8
[40,9,14,11,60, 65,91]	SNS addiction is significantly and positively related to depression and Neuroticism, while negatively associated with Agreeableness.	18.4
[6,19,23,27,28, 54]	Individuals high in extraversion to experience use SNS more frequently extraverted men and women were both likely to be more frequent users of SNS tools, only the men with greater degrees of emotional instability were more regular users. Extroverted and unconscientious individuals reported higher levels of both SNS use and addictive tendencies.	15.8
[8,27]	Six factors were affected different usage patterns as follows: desire for expression, peer influences, familiarity with information technologies, sensitivity to privacy, nature of using the internet, and perception of the SNS.	5.3
[6,19,27,54,85]	Users scoring high on openness and sensation seeking are more likely to be SNS addicts'.	13
[38,27]	Narcissistic users are more likely to upload their attractive photos on SNS and tend to use update status more frequently for self-presentation.	5.3
[19,79]	External Locus of Control predicts all three forms of Internet abuse. The desire to use the Internet for diversion and entertainment purposes predicts only online shopping and searching for non-work-related information.	5.3
[19,38,78,95,98, 23]	The personality and self-esteem factors significantly predicted both level of SNS use and addictive tendency but did not explain a large amount of variance in either outcome measure.	15.8

in academic related discussions in complementing conventional classroom teaching and learning process. However, [24] demonstrate that there is no relationship between SNS and academic performance. According to [8], SNS can positively or negatively affect the educational performance of students and hence must be managed efficiently. Adolescents consume a lot of time on SNS sites uploading/downloading, getting information concerning their career/academic work, chatting with friends and watching online movies. In contrast, [93] found that the majority of respondents agreed that SNS sites have a positive impact on their academic performance. Conversely, [19] found that SNS have a negative impact on study habits and completion of homework assignments, but there was not a drastic difference between students who spend a lot of time on these sites and those who do not. According to [77], Facebook users had lower Grade Point Averages and spent less time studying than students who did not use this

SNS. Of the 26% of students reporting an impact of their usage on their lives, three-quarters (74%) claimed that it had a negative impact, namely procrastination, distraction, and poor time-management. In contrast, [79] indicated that extensive use of Facebook by students with extraverted personalities leads to poor academic performance. However, students who are more self-regulated control their presence on these platforms more effectively. [3] argued that use of SNS have been associated with both positive and negative effects on students. [33] explored the relationship between SNS practices and academic performance and studying habits. Studying habits of the students were found to be significantly affected by the time spend on leisure activities, time spent on Internet, time spent on using SNS and the basic purpose of using SNS, while there was not any significant effects of leisure activities and purpose of using internet on studying habits of the student users [78] conducted a case-control study, involving 70

Table 2. An overview of previous studies on SNS' usage impacts on the academic and social lives (n=41 studies)

Positive impacts	Negative impacts	No impacts
• The majority of respondents agreed that SNS sites have a positive impact on their academic performance. • More students use Facebook and Twitter in academic related discussions and learning process. • A positive and significant relationship have been found between the SNS use and students' academic performance and their behaviour. • Greater reliance on online interactions for social and emotional support was found in some cases beneficial for high school students. • SNS differentially empower academics and students at different times, and students employ various forms of sophisticated authorial language to territorialise power in their interactions with lecturers and peers. • Positive association between SNS use, smartphone communication, and face-to-face social interaction. • Students greatly benefit from the social capital and friendship maintenance that SNS provides.	• SNS addiction tendency was significantly affected by secure attachment tendency and loneliness. • Frequent and too much use of SNS negatively affects the students' performances in tertiary education across Northern Nigeria. • The results identified the negative effects of SNS Facebook users. • Addictive tendencies were negatively associated with Internet self-efficacy. • A negative relation between use of SNS and GPA. • Rather than enhancing well-being, however, Facebook may undermine it. • Extensive Facebook usage was associated with more negative school and peer attitudes. SNS' greater reliance for social and emotional support was found disadvantageous for college students. • High-profile concerns and controversies that surround youth participation in these online communities. • Compulsive use rather than heavy, intense, or habitual use was found to account for academic and social maladjustment. • Extensive use of Facebook by students with extraverted personalities leads to poor academic performance. • Negative relationship between the use of various types of electronic media and first-semester grades. • Facebook users had lower Grade Point Averages and spent less time studying than students who did not use this SNS. Cyberbullying and sexting have the greatest negative impact on students. • People who spend more time on SNS were less involved with their real life communities.	• No relationship between SNS and academic performance • University students have very little exposure to use SNS content into their academic life • Despite spending time on SNS, students did not face any difficulty in meeting their academic requirements. • Use of SNS does not have an adverse impact on their academic performance. • No significant effect of area of study, educational level, study year, on the extent of SNS' usage. • There was not a drastic difference between students who spend much time on SNS and those who do not.
[12,15,22,93,97]	[2,3,4,7,14,17,28,31,39,44,47,50,53,55, 56,59,61,63,67,69,70,73,74,75,77,79,80, 83,89,90,92,97]	[11,17,30,72]
12.2%	78%	9.8%

students with grade point average (GPA) less than 16 of 20 (Case group) and 140 students with GPA equal 16 of 20 and higher (Control group). Interestingly, [79] assessed the effect of SNS on student's academic performance and student's behaviour. The results showed a

positive and significant relationship between the SNS and students' academic performance and their behaviour. [20] examined the various SNS mostly used by students and the frequency at which they make use of such services. The results found that excessively use of SNS negatively affects the student's performances in Northern Nigeria. In contrast, [22] revealed that those who spent more time on SNS also reported higher addictive tendencies. Addictive tendencies were positively correlated with both outcome expectancies and impulsivity, but negatively associated with Internet self-efficacy. Lastly, the literature review revealed the similarities and differences between previous studies and summarizes the SNS negative impacts on the academic and social lives Table 2.

5. DISCUSSION

The aim of this literature review was to present an overview of the emergent empirical research relating to SNS addiction. Many SNS scales were developed based on Brown's behavioral addiction symptoms, Griffiths components model of addiction, and diagnostic addiction criteria [17, 28,25,37,58,79,81,93]. Some studies on SNS addiction found that males are significantly more addicted to Facebook than females [10,33,79].

However, some studies explored the risk factors that associated with SNS addiction and revealed many cognitive and psychosocial health risk factors of SNS addiction [10,15,45,46,48,49], while other previous studies have focused on the SNS addiction symptoms such as cognitive and behavioral salience, conflict with other activities, euphoria, loss of control, withdrawal and relapse/ reinstatement [10,17,19,52,74]. Interestingly, other previous studies determine a high prevalence rate of SNS addicted among university students [3,17,21,24,25,35,77], however, it varies from country to country. Furthermore, several studies found gender differences in SNS addiction among university students [8,33,43,47,51,62,68,71]. However, there are no concordance on which gender is most likely to be addictive, besides SNS addiction varies depending on the type of SNS.

A group of past studies investigated the personalities of SNS addicted users [6,10,15,19, 23,27,57,51,64,74,80,82,78,78,95]. 18.4% of these studies agreed that SNS addiction is significantly and positively related to depression and Neuroticism. Although 78% of the reviewed previous studies have highlighted several potential negative correlations of extensive SNS usage and addiction on university student well-being, social and academic life, however, these studies gave more attention to the negative impact on students' academic performance. [3, 11,18,28,32,34,57,66,77,79,93]. However, other studies found that SNS usage was beneficial for university student's academic and social life [12, 15,22,93,97]. Only a few studies found there was no impact of SNS's on student's academic performance [11,17,30,72]. Therefore according to [20] both researchers and clinical practitioners can work together and establish productive communication between the involved parties that enable reliable and valid assessments of SNS addiction and associated behaviors and the development of targeted and specific treatment approaches to ameliorate the negative consequences of such disorders.

6. CONCLUSIONS

Information and communication technologies are generally considered to be supporting tools for the learning environments of the 21 century. However, SNS is widely used by university students in a way that can affect their well-being, social, and academic life. Therefore, the present review aimed to provide empirical and conceptual insight into SNS addiction among university students. It revealed that university students are highly addicted to SNS use. Further, it was also found that their addiction to such SNS negatively impacts their well-being, social and academic life. Accordingly, there is a strong need to think about how students' SNS addiction for non-educational and less-important purposes can be converted to an opportunity that supports a classroom learning environment. The findings of the current review provide valuable information on students' prevalence rate of addiction to SNS, personalities of SNS addicted users and SNS addiction's negative consequences; stressing educators, school administrators and policymakers to draft plans of action that lead to more productive uses of smartphones by university students. The institutions must take the following steps to prevent the misuse of these sites: Development of SNS usage policy, creating awareness about the problems and risks of SNS amongst all stakeholders, implementing security measures by the firewall, antivirus, etc., and officially recognizing and including SNS as a medium for higher education learning.

7. FUTURE RESEARCH DIRECTIONS

According to this review, there were still some limitations in the prior studies that should be mentioned. Firstly, the SNS scales used in these studies were mostly self-reported questionnaires, therefore, further researches could consider the use of multiple methods to reduce potential bias. Secondly, although these studies provided sufficient information, nevertheless the descriptive design made it difficult to clarify the causal or temporarily associated relationships between the variables. Longitudinal studies on SNS addiction that test the mediating effects of academic performance and life satisfaction across different ages are needed. Finally, future research needs to consider the impact of SNS addiction levels as a confounding variable in the mediating models. More studies must be conducted to improve our understanding of the social and cultural factors related to SNS addiction among the youth. There is a need to educate the students on the potential use of SNS as well as the risk factors of SNS addiction through separate curricula, thus more experimental studies should be the focus on this purpose. Furthermore, more studies have to focus on SNS addiction's social/psychological impact on the students' well-being. The future research ALSO can be take up integrating SNS with various other technologies and ICT tools including Educational ERP, Learning Management systems, like Moodle, etc. It can suggest and develop an innovative model of Teaching, Learning and development. This will lead to a paradigm shift in the teaching-learning scenario and employment activities.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Al-Yafi K, El-Masri M, Tsai R. The effects of using social network sites on academic performance: the case of Qatar. Journal of Enterprise Information Management. 2018; 31(3):446-462.
2. Han L, Geng J, Jou M, Gao F, Yang H. Relationship between shyness and mobile phone addiction in Chinese young adults: Mediating roles of self-control and attachment anxiety. Computers in Human Behavior. 2017;76:363-371.
3. Tang CSK, Koh YYW. Online social networking addiction among college students in Singapore: Comorbidity with behavioral addiction and affective disorder. Asian Journal of Psychiatry. 2017;25:175-178.
4. Xu H, Tan BCY. Why do I keep checking Facebook: Effects of message characteristics on the formation of social network services addiction? Thirty Third International Conference on Information Systems, Orlando; 2012.
   Available:http://elibrary.aisnet.org/Default.aspx?url=http://aisel.aisnet.org/cgi/viewcontent.cgi?article=1216&context= icis2012
5. Andreassen CS, Torsheim T, Brunborg GS, Pallesen S. Development of a Facebook addiction scale. Psychol Rep. 2012;110:501–17.
6. Amichai-Hamburger Y, Vinitzky G. Social network use and personality. Computers in Human Behavior. 2010;26:1289-1295.
7. Bijari B, Javadinia SA, Erfanian M, Abedini M, Abassi A. The impact of virtual social networks on students' Academic Achievement in Birjand University of Medical Sciences in East Iran. Procedia - Social and Behavioral Sciences. 2013;83: 103–106.
   Available:http://doi.org/10.1016/j.sbspro.2013.06.020
8. Park JH. Differences among university students and faculties in social networking site perception and use: Implications for academic library services. The electronic library. 2010;28(3):417-431.
9. Brailovskaia J, Teismann T, Margraf J. Physical activity mediates the association between daily stress and Facebook addiction disorder (FAD) – A longitudinal approach among German students. Computers in Human Behavior. 2018;86: 199-204.
10. Christy MK, Baptist HK, Tong K, Kong H. Understanding compulsive use of Facebook. Proceedings of the 21st European Conference on Information Systems. 2013;1–12.
11. Flad K. The influence of social networking participation on student academic performance across gender lines. (Unpublished Master's Theses). The College at Brockport: State University of New York Digital Commons, New York, USA; 2010.

12. Kuss DJ, Griffiths MD. Excessive online social networking: Can adolescents become addicted to Facebook? Education and Health. 2011[a];29, 63-66.

13. Olowu AO, Seri FO. A study of social network addiction among youths in Nigeria. Journal of Social Science and Policy Review. 2012;4(1):63-71.

14. Cao X, Masood A, Luqman A, Ali A. Excessive use of mobile social networking sites and poor academic performance: Antecedents and consequences from stressor-strain-outcome perspective. Computers in Human Behavior. 2018;85: 163-174.

15. Echeburua E, de Corral P. Addiction to new technologies and to online social networking in young people: A new challenge. Adicciones. 2010;22:91-95.

16. Hsuan-Ting C, Yonghwan K. Problematic use of social network sites: The interactive relationship between gratifications sought and privacy concerns. Cyberpsychology, Behavior and Social Networking. 2013;16 (11):806-812.
DOI:10.1089/cyber.2011.0608

17. Jacobsen WC, Forste R. The wired generation: Academic and social outcomes of electronic media use among university students. Cyberpsychology, Behavior and Social Networking. 2011;14(5):275-280.

18. Kanagarathinam M. Impact of social networking sites on academic performance of adolescents in Coimbatore city. Business Administration. 2014;4(12): 69–71.

19. Koc M, Gulyagci S. Facebook addiction among Turkish college students: The role of psychological health, demographic and usage characteristics. Cyberpsychology, Behavior, and Social Networking. 2013;16 (4):279-284.
DOI:10.1089/cyber.2012.0249

20. Ryan T, Chester A, Reece J, Xenos S. The uses and abuses of Facebook: A review of Facebook addiction. Journal of Behavioral Addictions. 2014;3(3):133–48.
Available:http://doi.org/10.1556/JBA.3.201 4.016

21. Wan C. Gratifications and loneliness as predictors of campus-SNS websites addiction and usage pattern among Chinese college students. (Unpublished Master Theses). Chinese University of Hong Kong, Hong Kong, China; 2009.

22. Wu AMS, Cheng VI, Ku L, Hung EPW. Psychological risk factors of addiction to social networking sites among Chinese smartphone users. J Behav Addict. 2013;2: 160–6.

23. Wilson K, Fornasier S, White KM. Psychological predictors of young adults' use of social networking sites. Cyberpsychology, Behavior and Social Networking. 2010;13(2):173-177.
DOI:10.1089/cyber.2009.0094

24. Zhou SX. Gratifications, loneliness, leisure boredom and self-esteem as predictors of SNS-game addiction and usage pattern among Chinese college students, (Unpublished Master thesis). Chinese University of Hong Kong, Hong Kong, China; 2010.

25. Jafarkarimi H, Sim A, Saadatdoost R, Hee JM. Facebook addiction among Malaysian students. International Journal of Information and Education Technology. 2016;6(6):465-469.

26. Raj M, Bhattacherjee S, Mukherjee A. Usage of online social networking sites among school students of Siliguri, West Bengal, India. Indian Journal of Psychological Medicine. 2018;40(5):452. Azizi, SM, Soroush A, Khatony A. The relationship between social networking addiction and academic performance in Iranian students of medical sciences: A cross-sectional study. BMC Psychology. 2019;7(1):28.

27. Wang JL, Jackson LA, Zhang DJ, Su ZQ. The relationships among the Big Five Personality factors, self-esteem, narcissism and sensation seeking to Chinese University students' uses of social networking sites (SNSs). Computers in Human Behavior. 2012;28(6):2313-2319.

28. Giota KG, Kleftaras G. The role of personality and depression in problematic use of social networking sites in Greece. Cyberpsychology: Journal of Psychosocial Research on Cyberspace. 2013;7(3).
DOI: 10.5817/CP2013-3-6

29. Kim KS, Cha HG. Factors influencing on SNS Addiction Tendency of University Students. Indian Journal of Science and Technology. 2016;9(43):1-7.

30. Abbas J, Aman J, Nurunnabi M, Bano S. The impact of social media on learning behavior for sustainable education: Evidence of students from selected

Universities in Pakistan. Sustainability. 2019;11(6):1683.

31. Abdulahi A, Jalil B, Lumpur K. A study on the negative effects of social networking sites such as Facebook among Asia Pacific University Scholars in Malaysia. International Journal of Business and Social Science. 2014;5(10):133–145.

32. Ahmed I, Qazi TF. A look out for academic impacts of Social networking sites (SNSs): A student based perspective. African Journal of Business Management. 2011;5 (12):5022-5031.
Available:http://www.academicjournals.org/AJBM

33. Ahmed I, Amir M, Qazi TF, Jabeen S. An investigation of SNS usage and its impact on studying habits and academic performance of University students. Research Journal of International Studies. 2011;21:145-158.

34. Ahn J. The effect of social network sites on adolescents' social and academic development: Current theories. Advances in Information Science. 2011;62(8):1435–1445.
Available:http://doi.org/10.1002/asi

35. Alabi OF. A survey of Facebook addiction level among selected Nigerian university undergraduates. New Media Mass Communication. 2012;10:70–80.

36. Bicen H. Determination of university students' reasons of using social networking sites in their daily life. Procedia-Social and Behavioral Sciences. 2015;190:519-522.

37. Andreassen CS, Pallesen S. Social network site addiction — An overview. Curr Pharm Des. 2014;20:4053–61.

38. Andreassen CS, Pallesen S, Griffiths MD. The relationship between addictive use of social media, narcissism and self-esteem: Findings from a large national survey. Addictive Behaviors. 2017;64:287-293.

39. Azizi SM, Soroush A, Khatony A. The relationship between social networking addiction and academic performance in Iranian students of medical sciences: a cross-sectional study. BMC Psychology. 2019;7(1):28.

40. Banjanin N, Banjanin N, Dimitrijevic I, Pantic I. Relationship between internet use and depression: Focus on physiological mood oscillations, social networking and online addictive behavior. Computers in Human Behavior. 2015;43:308-312.

41. Barker V. Older adolescents' motivations for social network site use: The influence of gender, group identity and collective self-esteem. CyberPsychol. Behav. 2009; 12:209-213.

42. Bernadett K, Peter N. Facebook usage patterns and school attitudes. Multicultural Education & Technology Journal. 2012;6 (1):4–17.
DOI:http://dx.doi.org/10.1108/17504971211216283

43. Błachnio A, Przepiorka A, Benvenuti M, Cannata D, Ciobanu A, Senol-Durak E, Durak M, Giannakos MN, Mazzoni E, Papas I, Popa C, Seidman G, Yu S, Wu A, Ben-Ezra M. Cultural and personality predictors of Facebook intrusion: A cross-cultural study. Front. Psychol. 2016;7: 1895.
DOI:http://dx.doi.org/10.3389/fpsyg.2016.01895

44. Butler M. Online social networking and the impact on well-being, (Unpublished Master theses). University of Texas, Texas, USA; 2010.

45. Cabral J. Is generation Y addicted to social media? The Elon Journal of Undergraduate Research in Communications. 2010;2(1):59–68.

46. Cam E, Isbulan O. A new addiction for teacher candidates: Social networks. Turkish Online Journal of Educational Technology. 2012;11(3):14–19.

47. Can L, Kaya N. Social networking sites addiction and the effect of attitude towards social network advertising. Procedia-Social and Behavioral Sciences. 2016;235:484-492.

48. Cha J. Factors affecting the frequency and amount of social networking site use: Motivations, perceptions and privacy concerns. First Monday. 2010;15 (12).
Available:http://frodo.lib.uic.edu/ojsjournals/index.php/fm/article/view/2889

49. Cheak APC, Goh GGG, Chin TS. Online social networking addiction: Exploring its relationship with social networking dependency and mood modification among undergraduates in Malaysia. International Journal on Social Science Economic & Art. 2012;2(4):21-27.

50. Chen A. From attachment to addiction: The mediating role of need satisfaction on social networking sites. Computers in Human Behavior. 2019;98:80-92.

51. Chen C, Zhang KZ, Gong X, Zhao SJ, Lee MK, Liang L. Examining the effects of motives and gender differences on smartphone addiction. Computers in Human Behavior. 2017;75:891-902.

52. Chen JV, Ross WH, Yang HH. Personality and motivational factors predicting internet abuse at work. Cyberpsychology: Journal of Psychosocial Research on Cyberspace. 2011;5(1):1-10.
Available:http://www.cyberpsychology.eu/view.php?cisloclanku=2011060601&article=1

53. Choi SB, Lim MS. Effects of social and technology overload on psychological well-being in young South Korean adults: The mediatory role of social network service addiction. Computers in Human Behavior. 2016;61:245-254.

54. Correa T, Hinsley AW, de Zuniga HG. Who interacts on the Web? The intersection of users' personality and social media use. Computers in Human Behavior. 2010;26: 247-253.

55. Darcin AE, Noyan C, Nurmedov S, Yilmaz O, Dilbaz N. Smartphone addiction in relation with social anxiety and loneliness among university students in Turkey. European Psychiatry. 2015;30:505.

56. Dau B. Social computing: A study assessing the impacts of social network addiction among the students in Northern Nigeria. International Journal of Humanities and Management Sciences (IJHMS). 2015;3(1):37–40.

57. El-badawy TA, Hashem Y. The impact of social media on the academic development of school students. International Journal of Business Administration. 2015;6(1):46–52.
Available:http://doi.org/10.5430/ijba.v6n1p46

58. Elphinston RA, Noller P. Time to face it! Facebook intrusion and the implications for romantic jealousy and relationship satisfaction. Cyberpsychol Behav Soc Netw. 2011;14:631–5.

59. Foroughi B, Iranmanesh M, Nikbin D, Hyun SS. Are depression and social anxiety the missing link between Facebook addiction and life satisfaction? The interactive effect of needs and self-regulation. Telematics and Informatics. 2019;43:101247.

60. Fox J, Moreland JJ. The dark side of social networking sites: An exploration of the relational and psychological stressors associated with Facebook use and affordances. Computers in Human Behavior. 2015;45:168-176.

61. Hameed Z, Maqbool A, Aslam N, Hassan EU, Maqsood A. An empirical study to investigate the impact of social networking sites on student's academic performance and. Asian Journal of Empirical Research Journal. 2013;3(6):775–784.
Available:http://aessweb.com/journal-detail.php?id=5004 AN

62. Hargittai E. Whose Space? Differences among users and non-users of social network sites. Journal of Computer-Mediated Communication. 2007;13(1): 276–297.
Available:http://doi.org/10.1111/j.1083-6101.2007.00396.x

63. Helou AM, Ab. Rahim NZ. The influence of social networking sites on students' academic performance in Malaysia. International Journal of Electronic Commerce Studies. 2014;5(2):247–254.
Available:http://doi.org/10.7903/ijecs.1114

64. Hong F, Huang D, Lin H, Chiu S. Analysis of the psychological traits, Facebook usage and Facebook addiction model of Taiwanese university students. Telematics Inform. 2014;31:597– 606.

65. Hou XL, Wang HZ, Guo C, Gaskin J, Rost DH, Wang JL. Psychological resilience can help combat the effect of stress on problematic social networking site usage. Personality and Individual Differences. 2017;109:61-66.

66. Hou Y, Xiong D, Jiang T, Song L, Wang Q. Social media addiction: Its impact, mediation and intervention. Cyberpsychology: Journal of Psychosocial Research on Cyberspace. 2019;13(1).
Available:http://dx.doi.org/10.5817/CP2019-1-4

67. Huang C. Social network site use and academic achievement: A meta-analysis. Computers & Education. 2018;119:76-83.

68. Kim Y, Lee N, Lim Y. Gender differences in the association of smartphone addiction with food group consumption among Korean adolescents. Public Health. 2017; 145:132.

69. Kirschner PA, Karpinski AC. Facebook and academic performance. Computers in Human Behavior. 2010;26:1237-1245.

70. Kross E, Verduyn P, Demiralp E, Park J, Lee DS, et al. Facebook use predicts

declines in subjective well-being in young adults. PLoS ONE. 2013;8(8):e69841.
DOI: 10.1371/journal.pone.0069841

71. Kuss DJ, Griffiths MD. Social networking sites and addiction: Ten lessons learned. International Journal of Environmental Research and Public Health. 2017;14(3):311.

72. Kuss DJ, Griffiths MD. Online social networking and addiction: A literature review of empirical research. International Journal of Environmental and Public Health. 2010[b];8:3528-3552.

73. LaRose R, Wohn DY, Ellison N, Steinfield C. Facebook fiends: Compulsive social networking and adjustment to college. Proceedings of IADIS International Conference ICT, Rome, Italy; 2011.

74. Lee G, Lee J, Kwon S. Use of social-networking sites and subjective well-being: A study in South Korea. Cyberpsychol. Behav. Soc. Network. Int. J. Environ. Res. Public Health. 2011;8:3549.

75. Lee ZWY, Cheung CMK, Thadani DR. An investigation into the problematic use of Facebook. Proceedings of the 45th Hawaii International conference on System Sciences. 2012;1768–76.
DOI: 10.1109/HICSS.2012.106

76. Liu C, Ma J. Development and validation of the Chinese social media addiction scale. Personality and Individual Differences. 2018;134:55-59.

77. Moqbel M, Kock N. Unveiling the dark side of social networking sites: Personal and work-related consequences of social networking site addiction. Information & Management. 2018;55(1):109-119.

78. Murad A, Gul A, Changezi R, Naz A, Khan N. Effects of facebook usage on the academic performance on the undergraduate students of Quetta City. CLINICAL SOCIAL WORK. 2019;70.

79. Nie J, Li W, Wang P, Wang X, Wang Y, Lei L. Adolescent type D personality and social networking sites addiction: A moderated mediation model of restorative outcomes and affective relationships. Psychiatry Research. 2019;271:96-104.

80. Nyland R, Marvez R, Beck J. Myspace: social networking or social isolation? In Proceedings of the Midwinter Conference of the Association for Education in Journalism and Mass Communication, Reno, NV, USA; 2007.

81. Orr ES, Sisic M, Ross C, Simmering MG, Arseneault JM, Orr RR. The influence of shyness on the use of Facebook in an undergraduate sample. Cyber Psychology & Behavior. 2009;12(3):337-340.

82. Osatuyi B, Turel O. Tug of war between social self-regulation and habit: Explaining the experience of momentary social media addiction symptoms. Computers in Human Behavior. 2018;85:95-105.

83. Pelling EL, White KM. The theory of planned behavior applied to young people's use of social networking web sites. CyberPsychology & Behavior. 2009; 12:755–759. 54

84. Przepiorka A, Blachnio A. Time perspective in internet and Facebook addiction. Computers in Human Behavior. 2016;60:13-18.

85. Rambe P. Exploring the impacts of social networking sites on academic relations in the University. Journal of Information Technology Education. 2011;10:271-293.

86. Ross C, Orr ES, Sisic M, Arseneault JM, Simmering MG, Orr RR. Personality and motivations associated with Facebook use. Computers in Human Behavior. 2009;25 (2):578-586.
DOI:10.1016/j.chb.2008.12.024

87. Rouis S, Limayem M, Salehi-sangari E. Impact of facebook usage on students' academic achievement: Roles of self-regulation and trust. Electronic Journal of Research in Educational Psychology. 2011;9(3):961-994.
[ISSN:1696-2095]

88. Rozgonjuk D, Kattago M, Täht K. Social media use in lectures mediates the relationship between procrastination and problematic smartphone use. Computers in Human Behavior. 2018;89:191-198.

89. Salvation M, Adzharuddin NA. The Influence of Social Network Sites (SNS) upon Academic Performance of Malaysian Students. International Journal of Humanities and Social Science. 2014;4 (10):131–137.

90. Samaha M, Hawi NS. Relationships among smartphone addiction, stress, academic performance and satisfaction with life. Computers in Human Behavior. 2016;57:321-325.

91. Seo D, Ray S. Habit and addiction in the use of social networking sites: Their nature, antecedents and consequences.

Computers in Human Behavior. 2019;99: 109-125.

92. Sofiah S, Omar SZ, Bolong J, Osman MN. Facebook addiction among female university students. Revista De Administratie Publica Si Politici Sociale. 2012;2:95–109.

93. Subramani R. The academic usage of social networking sites by the University students of Tamil Nadu. Online Journal of Communication and Media Technologies. 2015;4(10):162–175.

94. Tang JH, Chen MC, Yang CY, Chung TY, Lee YA. Personality traits, interpersonal relationships, online social support and Facebook addiction. Telematics and Informatics. 2016;33(1):102-108.

95. Tops M, Koole SL, IJzerman H, Buisman-Pijlman FT. Why social attachment and oxytocin protect against addiction and stress: Insights from the dynamics between ventral and dorsal corticostriatal systems. Pharmacology Biochemistry and Behavior. 2014;119:39-48.

96. Turel O, Serenko A. The benefits and dangers of enjoyment with social networking websites. Eur J Inf Syst. 2012; 21:512–28.

97. Ünal-Aydın P, Balıkçı K, Sönmez İ, Aydın O. Associations between emotion recognition and social networking site addiction. Psychiatry research. 2019; 112673.

98. Wang CW, Ho RT, Chan CL, Tse S. Exploring personality characteristics of Chinese adolescents with internet-related addictive behaviors: Trait differences for gaming addiction and social networking addiction. Addictive Behaviors. 2015;42: 32-35.