Author’s response to reviews

Title: The relationship between social networking addiction and academic performance in Iranian students of medical sciences

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Author’s response to reviews:

Dear Editor-in-chief of BMC PSYCHOLOGY

We are grateful to the editors and reviewers for their time and constructive comments on our manuscript. We have implemented their comments and suggestions and wish to submit a revised version of the manuscript for further consideration in the journal. Changes in the initial version of the manuscript are highlighted added sentences in the revised version. Below, we also provide a point-by-point response explaining how we have addressed each of the editors or reviewers’ comments. We look forward to the outcome of your assessment.

Yours sincerely,

On behalf of the co-authors
Alireza Khatony, PhD

Editor Comments

Comment: Theoretically, your paper did not set up a convincing delineation of the incremental contribution your study makes to the existing empirical literature. I am not saying there is not one there, but just that it needs to be more clearly articulated in the context of an empirical report. Author/s should ensure that there is an explicit alignment and consistency between a theoretical stance and their approach. They should made it explicit in the introduction of the paper. The theoretical perspective should also serve to comment results in the discussion section.
Answer: in our opinion, one cannot express a single theory to explain the cause of addiction to virtual social networks. Several factors contribute to the creation of addiction to virtual networks, which are expressed in terms of various theories. These theories were mentioned in the introduction and their application was mentioned in the discussion section, as below:

Introduction (page 3)
There are many different theories about the addiction to internet and social networks. The most important theories include dynamic psychology theory, social control theory, behavioral explanation, biomedical explanation, and cognitive explanation. According to dynamic psychology theory, the roots of social networking addiction are in the psychological shocks or emotional deficiencies in childhood, personality traits, and psychosocial status. According to the social control theory, since addiction varies in terms of age, sex, economic status, and nationality, certain types of addiction are more likely to be found in certain groups of society than in other groups (21). The theory of behavioral explanation believes that, a person uses social networks for rewards such as escaping reality and entertainment. Based on the biomedical explanation theory, the presence of some chromosomes or hormones, or the lack of certain chemicals that regulate brain activity, are effective in addiction (22, 23). According to the cognitive explanation theory, social networking addiction is due to faulty cognition, and people tend to use social networks to escape from internal and external problems (24). In general, addiction to social networking is classified as a form of cyber-relationship addiction (25).

Discussion, Page 10
Based on the theory of behavioral explanation, a person enters social networks for rewards such as escaping reality and entertainment. Excessive use of these networks can cause addiction in the user.

Discussion. Page 9
According to the social control theory, since addiction varies in terms of demographic variables such as sex, certain types of addiction are more likely to be found in certain groups of society than in other groups
Comment: Moreover, due that authors analyzed gender differences they should include a gender perspective to better explain the gender differences found.

Answer: we provided following paragraph in discussion section, page 9:
Based on our findings, the first hypothesis of the study was confirmed and a statistically significant relationship was found between social networking addiction and students' gender. In this regard, we found that the mean of social networking addiction in male students was significantly higher than female students. This part of our findings is consistent with the findings of other studies (26, 33-35, 40). In studies conducted on students of medical sciences in Iran, internet addiction in male students was higher than female students (33, 53, 54). Findings of a study in Turkey (2016) suggested that addiction in Tweeter social network among male students was higher than female students (55). But the results of a study on Polish students showed that, female students were using Facebook more than male students (37), Andreassen et al. (2017) showed that being female is one of the factors that has a statistically significant relationship with social networking addiction (36). According to the social control theory, since addiction varies in terms of demographic variables such as sex, certain types of addiction are more likely to be found in certain groups of society than in other groups (21). In this regard, evidence suggests that in general, 68% of women and 62% of men use social networks, and on average, women spend 46 minutes and men spend 31 minutes on social networking (52).
Comment: Introduction could also be improved with a better review of the previous research concerning the variables (independent variables) included in the study. For example, authors introduced in the tables results all the variables they investigated. However, in the theoretical section these variables are only lightly outlined. A more sound theoretical support should be offered to the readers, including references for all the variables included in the study. Then, additionally, a more detailed discussion section should be provided. Literature review in the introduction and discussion is limited. For example, previous studies analyzing gender are missing. There are also multiple studies analyzing the same research question, so more literature is needed in order to explain what new insights offer the actual investigation.

Answer: The main purpose of our study was to investigate the relationship between academic performance and social network addiction among students. We examined the relationship between social networking addiction and only the sex of students as a secondary goal.

Studies that examined the relationship between gender with social network addiction were added to the discussion section, as below (page 9)

Based on our findings, the first hypothesis of the study was confirmed and a statistically significant relationship was found between social networking addiction and students' gender. In this regard, we found that the mean of social networking addiction in male students was significantly higher than female students. This part of our findings is consistent with the findings of other studies (26, 33-35, 40). In studies conducted on students of medical sciences in Iran, internet addiction in male students was higher than female students (33, 53, 54). Findings of a study in Turkey (2016) suggested that addiction in Tweeter social network among male students was higher than female students (55). But the results of a study on Polish students showed that, female students were using Facebook more than male students (37), Andreassen et al. (2017) showed that being female is one of the factors that has a statistically significant relationship with social networking addiction (36). According to the social control theory, since addiction varies in terms of demographic variables such as sex, certain types of addiction are more likely to be found in certain groups of society than in other groups (21). In this regard, evidence suggests that in general, 68% of women and 62% of men use social networks, and on average, women spend 46 minutes and men spend 31 minutes on social networking (52).

Discussion, (page 10)
Based on the findings, the second hypothesis of the research was confirmed and a negative and significant correlation was found between social networking addiction and students' academic performance. This finding means that, an increase in the excessive use of social networks decreases the academic performance. Based on the theory of behavioral explanation, a person enters social networks for rewards such as escaping reality and entertainment (21). Excessive use of these networks can cause addiction in the user.

Comment: Authors should add a summary at the end of the Introduction about the specific hypotheses being tested. They should be sure to state these in ways that do allow direct testing and refer to the actual variables being used. They should make sure that any variables that appear in the later analyses are included in at least one of these hypotheses. They should refer to hypotheses by number and review these again in the Results as each of them is tested.

Answer: We mentioned to the hypothesis in introduction and discussion sections as below:
Introduction

Thus, we sought to examine the following hypothesis in this study:
1) There is significant relationship between the mean of social networking addiction and students gender.
2) Social networking addiction have a negative and significant correlation with academic performance.

Discussion, page 9
Based on our findings, the first hypothesis of the study was confirmed and a statistically significant relationship was found between social networking addiction and students' gender. In this regard..................

Discussion, page 10

Based on the findings, the second hypothesis of the research was confirmed and a negative and significant correlation was found between social networking addiction and students' academic performance.

Method:
Comment: I would like to see more detail around the sample and the procedures. How many time did employ participants to fill the instruments? Did this happen at school time? Given the sensitivity of the questions how was anonymity and confidentiality conveyed and ensured? How long did the data collection process take overall?
Answer: we mentioned to these comments in method section as below:
In our study, the average response time to the questionnaire was about 20 minutes. The questionnaires were distributed in faculties at the end of the classes. The sampling lasted for one month. The goals of study were explained to the samples and written informed consent was obtained from all of them. Concerning the confidentiality of personal information and responses, reassurance was given to the participants.

Discussion
Discussion warrants more attention considering a theoretical stance and the inclusion of the gender perspective. Indeed, it is needed a much clearer discussion of the rationale for each of the predictions. Why would each effect be anticipated with your sample? It is not sufficient to state that a result was found and previous research has also found similar or different results. Theory is needed better explain the results.
Answer: We mentioned the theoretical stance regarding our finding, as below:
Discussion, page 9

Based on our findings, the first hypothesis of the study was confirmed and a statistically significant
relationship was found between social networking addiction and students' gender. In this regard, we found that the mean of social networking addiction in male students was significantly higher than female students. This part of our findings is consistent with the findings of other studies (26, 33-35, 40). In studies conducted on students of medical sciences in Iran, internet addiction in male students was higher than female students (33, 53, 54). Findings of a study in Turkey (2016) suggested that addiction in Tweeter social network among male students was higher than female students (55). But the results of a study on Polish students showed that, female students were using Facebook more than male students (37), Andreassen et al. (2017) showed that being female is one of the factors that has a statistically significant relationship with social networking addiction (36). According to the social control theory, since addiction varies in terms of demographic variables such as sex, certain types of addiction are more likely to be found in certain groups of society than in other groups (21). In this regard, evidence suggests that in general, 68% of women and 62% of men use social networks, and on average, women spend 46 minutes and men spend 31 minutes on social networking (52).

Discussion, page 10
Based on the findings, the second hypothesis of the research was confirmed and a negative and significant correlation was found between social networking addiction and students' academic performance. This finding means that, an increase in the excessive use of social networks decreases the academic performance. Based on the theory of behavioral explanation, a person enters social networks for rewards such as escaping reality and entertainment (21). Excessive use of these networks can cause addiction in the user.

Comments: Authors should be more specific about the practical implications of their study. Practical implication should be more discussed and be part of a specific sub-section.
Discussion could be organized in subsections including more clearly limitations and practical implications.
Answer: we add practical implications at the end of discussion, as below. We rewrite the limitations section too.

Practical implications
Since students, who have a high level of anxiety, stress, and depression and a low level of self-esteem, are more at risk of social networking addiction, designing and implementing counseling programs to promote mental health is recommended for them. Additionally, Cognitive Behavioral Therapy (CBT) is suggested to reduce social networks dependency. CBT is one of the most effective therapies for reducing social networks dependency. Based on the CBT method, thoughts are the determinant of emotion, therefore, by controlling negative thoughts and managing behavior, we can reduce the dependence on social networks.

Limitation
Our study had two limitations. Due to the cross-sectional nature of this study, it was not possible to explain the causal relationships between the variables of social networking addiction and academic performance of students. In the current study, the data were collected by self-reporting method that could have affected the accuracy of the results. However, the researcher tried to solve this limitation by reassuring the participants that their responses would remain confidential.

Reviewer reports:
Lucia Santelices (Reviewer 1): Felicito a los autores por la precisión y claridad del trabajo (I congratulate authors for the precision and clarity of their work)
Gianluca Serafini (Reviewer 2): This is, in summary, an interesting paper aimed to investigate the relation between social networking addiction and academic performance in a sample of 360 Iranian students who were recruited by stratified random sampling. The authors reported that the mean social networking addiction was 50.83 (±13.00) out of 90. Moreover, there was a significant/negative relation between students' addiction to social networking and their academic performance. The authors concluded that it is imperative that the university authorities take interventional steps to help students who are dependent on these networks informing them, through workshops, about the negative consequences of addiction to these networks.

The authors may find as follows my main comments/suggestions.

Comment: First, when throughout the Introduction section the authors reported that the current use of social networks has been managed poorly, as they can have negative consequences at the individual and social levels and immediately cited the social networking addiction, they seem to simply refer to only this condition and not adequately focusing on recent emergent issues that are now completely changing the world of psychopathology that clinicians have been to date trained to recognize. Here, more details/information to this regard are needed.

Answer: In the introduction section, we fully referred to the social networks addiction and related theories.

Addictive behavior refers to repeated habits that increase the risk of a disease or social problems in a person. Over the past decade, addictive behaviors, such as overuse of internet or social networks, have become a part of everyday life of students. Social networking addiction includes the characteristics such as ignoring the real problems of life, neglecting oneself, mood swing, concealing addictive behaviors, and having mental concerns (4).

Evidence suggests that many factors are associated with addiction to internet and social networks. Among these factors are online shopping, dating, gaming and entertainment, using mobile phones for access to internet, searching for pornographic images, user personality traits, and low self-esteem (19,30,32 -34).

There are many different theories about the addiction to internet and social networks. The most important theories include dynamic psychology theory, social control theory, behavioral explanation, biomedical explanation, and cognitive explanation. According to dynamic psychology theory, the roots of social networking addiction are in the psychological shocks or emotional deficiencies in childhood, personality traits, and psychosocial status. According to the social control theory, since addiction varies in terms of age, sex, economic status, and nationality, certain types of addiction are more likely to be found in certain groups of society than in other groups (21). The theory of behavioral explanation believes that, a person uses social networks for rewards such as escaping reality and entertainment. Based on the biomedical explanation theory, the presence of some chromosomes or hormones, or the lack of certain chemicals that regulate brain activity, are effective in addiction (22, 23). According to the cognitive explanation theory, social networking addiction is due to faulty cognition, and people tend to use social networks to escape from internal and external problems (24). In general, addiction to social networking is classified as a form of cyber-relationship addiction (25).

Comment: In addition, within the same section, while the authors simply referred to the existence of studies who found a significant/negative relation between the use of social networks and academic performance, they should, in my opinion, at least partially focus on the most frequent association between the use of social networks and major depression and/or suicidal behavior. Moreover, as the authors reported extensively the most important aims/objectives of this paper, similarly the main study hypotheses should be described.

Answer: The main goal of the current study was to determine the relationship between the academic performance and social networking addiction among students. However, we mentioned in the
introduction to some of the psychological consequences of social networking addiction. Also, we described our hypothesis at the end of Introduction and discussion sections, as below:

Introduction section

Social networking has a negative impact on physical and psychological health and causes behavioral disorders (26), depression (27, 28), anxiety and mania (28). In this regard, results of a study on German students (2017) showed a positive relationship between addiction to facebook, with narcissism character, depression, anxiety and stress (29). It is believed that addiction to social networking is higher in people with anxiety, stress, depression and low self-esteem (4). Griffith (2005) suggests that addictive behavior is a behavior that has certain characteristics such as salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse (30).

Introduction section, page 5

We sought to examine the following hypothesis in this study:
1) There is significant relationship between the mean of social networking addiction and students gender.
2) Social networking addiction have a negative and significant correlation with academic performance.

Discussion section, pages 9 and 10

Based on our findings, the first hypothesis of the study was confirmed and a statistically significant relationship was found between social networking addiction and students' gender.

Based on the findings, the second hypothesis of the research was confirmed and a negative and significant correlation was found between social networking addiction and students' academic performance.

Comments: Furthermore, the Bergen Social Media Addiction Scale (BSMAS) could be described more succinctly.

Answer: The six components of the social network addiction questionnaire were described in full, as below:

Method section

BSMAS consists of 18 questions and 6 items, in a way that, each item has 3 questions. The items include; salience (1-3), tolerance (4-6), mood modification (7-9), withdrawal (10-12), relapse (13-15) and conflict (16-18). Salience refers to our thinking and behavior in using social networks. It means that, the addictive use of social networks is manifested in the form of individual’s dependency on social networks. Tolerance (craving) represents a gradual increase in the use of social networks to gain pleasure. Mood modification represents modifying and improving behavior or mood. In other words, this component suggests that some users use social networks to get rid of unpleasant feelings. Withdrawal is an unpleasant feeling that a person experiences when disconnected from social networks or discovers he or she is forbidden to use social network. Relapse is a failed attempt of a person to control his/her social networking usage. Conflict represents issues that cause tensions in relationships with others, workplace, education, etc (36, 46).
Comments: Also, concerning the most relevant results/findings of this manuscript, the authors simply described the most relevant socio-demographic and clinical characteristics of the study sample and later reported simple bivariate correlations between the identified variables. Here, the question that was not minimally investigated is the potential predictive value of social networking addiction in terms of academic performance of the analyzed study sample. Why the authors did not perform a multivariate regression analysis to address this fundamental issue?

Answer: The use of multivariate regression requires the normalization of data, but in our study, the data were not normal and there were no preconditions for using the multivariate regression test. So we could not use this test.

Comments: Here, more details/information are needed to this regard for the general readership. Moreover, the Discussion section is really poor and limited as actually presented and needs to be readapted in order to more clearly stress the main topic and its clinical implications. Perhaps, new findings derived from carrying out regression analyses may help to generally improve the main structure and quality of the present paper.

Answer: As explained above, due to the abnormal distribution of data, the possibility of using multivariate regression was not provided. However, the discussion section was rewritten.

In our study, the rate of addiction to social networking was moderate. In this regard, the prevalence of social networking addiction among students in Singapore and India was reported to be 29.5% and 36.9% respectively (26, 28). The results of a meta-analysis study (2018) on internet addiction showed that, the prevalence of internet addiction among medical students was 30.1% worldwide (49). Results of a meta-analysis study (2017) suggest that, the prevalence of internet addiction in Iran is moderate (50). Social networking addiction increases the incidence of disorders such as depression, stress and anxiety (28, 29). If students fail to manage the time they spend on social networks and the reasons for doing that, they will be seriously harmed at individual and social levels. Accordingly, the result of a study showed that the overuse of social networks affects the social life of individuals (51). Hawi and Samaha (2016) argued that, the higher the social networking addiction of students, the lower their self-esteem is (52).

Based on our findings, the first hypothesis of the study was confirmed and a statistically significant relationship was found between social networking addiction and students' gender. In this regard, we found that the mean of social networking addiction in male students was significantly higher than female students. This part of our findings is consistent with the findings of other studies (26, 33-35, 40). In studies conducted on students of medical sciences in Iran, internet addiction in male students was higher than female students (33, 53, 54). Findings of a study in Turkey (2016) suggested that addiction in Tweeter social network among male students was higher than female students (55). But the results of a study on Polish students showed that, female students were using Facebook more than male students (37), Andreassen et al. (2017) showed that being female is one of the factors that has a statistically significant relationship with social networking addiction (36). According to the social control theory, since addiction varies in terms of demographic variables such as sex, certain types of addiction are more likely to be found in certain groups of society than in other groups (21). In this regard, evidence suggests that in general, 68% of women and 62% of men use social networks, and on average, women spend 46 minutes and men spend 31 minutes on social networking (52).

Based on the findings, the second hypothesis of the research was confirmed and a negative and significant correlation was found between social networking addiction and students' academic performance. This finding means that, an increase in the excessive use of social networks decreases the academic performance. Based on the theory of behavioral explanation, a person enters social networks for rewards such as escaping reality and entertainment (21). Excessive use of these networks can cause addiction in the user. Our results are consistent with the findings of Ahmadi and Zeinali (2018), Kumar et al. (2018), and Kim et al. (2018) studies (42, 43, 56). In this regard, Ahmadi and Zeinali (2018) in a
study showed that social networking addiction has a negative impact on academic achievement by creating academic procrastination, reducing sleep quality and increasing academic stress (56). However, Junco et al. (2011) believed that some social networks such as Twitter can be used as a learning tool by students and professors. Also, these networks can increase academic engagement in students and professors (57). But the point about the use of social networks as an educational tool is that, overuse of social networks reduces the level of academic engagement and students' grades. Therefore, when using social networks, special attention should be paid to the time management. In fact, improving students’ academic performance depends on the lesser use of social networks (58).

Comments: In addition, in the Conclusion section, the authors should more directly specify some conclusive remarks as well as explain how the issue of addiction to social networking needs to be comprehensively reviewed and considered. Here, I suggest to insert a specific take-home message to this regard.

Answer: according to above recommendation, we made necessary corrections in the conclusions and practical implication section, as below:

Conclusions
Also, appropriate planning should be made to prevent addiction to social networking, control its use, and increase the opportunities and reduce the threats of this tool. In this regard, allocating some of the research priorities to the positive and negative applications of social media at individual, social and academic levels can be beneficial.

Practical implications
Since students, who have a high level of anxiety, stress, and depression and a low level of self-esteem, are more at risk of social networking addiction, designing and implementing counseling programs to promote mental health is recommended for them. Additionally, Cognitive Behavioral Therapy (CBT) is suggested to reduce social networks dependency. CBT is one of the most effective therapies for reducing social networks dependency. Based on the CBT method, thoughts are the determinant of emotion, therefore, by controlling negative thoughts and managing behavior, we can reduce the dependence on social networks.

Comments: Finally, the manuscript needs to be reviewed by a native English speaker for the quality of language.

Answer: the manuscript was reviewed in term of English language.

Mainul Haque (Reviewer 3): Bergen Social Media Addiction Scale (BSMAS)
Comments: The instrument is Generic or not? If not generic need permission from the owner?
Answer: Bergen Social Media Addiction Scale is a Generic tool.