Investigating the Relationship Between Social Media Usage and Internet Gaming on Poor Sleep Quality; Gender Differences

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Abstract

The current study is to find the relationships between Social Media Usage and Internet Gaming on Poor Sleep Quality while exploring gender differences. Finding from the multiple regression analyses suggest that there is no significant correlation between Sleep quality, internet gaming, and social media. The t-test suggest sleep quality is not predicted by the amount of time spent on social media or online gaming. Social media was significantly higher for females than in males.

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Literature review

More than 4.5 billion people are using the internet at the start of 2020. More than 3.8 billion users are actively on social media. Nearly 60% of the world's population are active online, suggesting that more than half of the population will use social media by the middle of this year (Chaffey, 2020). Based on Kepios Analysis, Facebook is the highest rank in the most-used social platforms staggering at a 2449 million users per month (Chaffey, 2020).

Social media is a user generated content platform including the ability to exchange photos and videos and comments with other users (Van der Bank &Van der Bank, & 2014). There are many important uses of social media depending on what sector the individual or organisation is involved in. It can be used as a means of communication, marketing, advertising, inspiration and trading of information and knowledge, entertainment, convenience, and just to even pass the time (Whiting & Williams, 2013). Disadvantages of the use of social media include, lack of security, social media addiction, information overload, and sometimes a loss of contacts (Drahošová & Balco, 2017).

An issue arises with the term gender online as it refers to the personal identification of individuals. Gender, based on biological sex, uses the terms males and females, however, it is difficult to determine an internet users' actual biological sex. Keeping that in mind, females are more likely to be active online than males (Herring & Kapidzic, 2015).

Based on Herring & Kapidzic (2015), 95% of all U.S. teens are constantly online compared to only 64% of online users aged 30 and over. On average, 11-18-year-olds spend over an hour a day using a computer and 27 minutes a day visiting social media sites. This poses a huge problem for teenagers since they are inexperienced and unaware of the risk of exploring social media. Researchers observed behavioural and psychological patterns seen in other forms of addiction, in individuals using the internet. Studies also show that, to some

extent, internet usage report sleep problems. In terms of cognitive functioning, sleep quality affects the prefrontal cortex from functioning which leads to a lack of creativity and planning and cognitive failures (Xanidis & Brignell, 2016; Woods & Scott, 2016).

According to Lam (2014), studies suggest that gaming was the most common of internet usage. Students that played online games differed significantly to other games with increase of worse health, sleep quality and academic work (Lam, 2014).

The aim of the current study is to understand social media usage and internet gaming on poor quality of sleep. This study aims to examine gender differences between the effects of social media usage, internet gaming and poor sleep quality. Here are the following research questions and hypotheses:

R1: Is there a relationship between social media usage, Internet Gaming and Sleep Quality? H1: There will be a relationship between the predictor variables (PV) Social Media usage and Internet Gaming, and the criterion variable (CV) sleep quality.

R2: Does Social media usage and Internet gaming usage predict poor quality of sleep, in young adults? H2: High levels social media and high levels of Internet Gaming will predict poor sleep quality.

R3: Is there a difference in gender for social media usage and poor Sleep quality? H3: Females will score higher in poor sleep quality and social media usage than males.

Methodology

Participants

The sample of this study consisted of 34 participants (Males: n = 13; Females: n = 21). Sample size is calculated using Tabachnick & Fidell (2013) formula; (N > 50 +8m), N = number of participants, m = number of predictor variables. The current sample size is small and would not generalise with another sample, causing little scientific value. However, based on Stevens (2012), the minimum sample size guideline for multiple regression is fifteen participants per predictor; n = 30. Participants were recruited using convenience sampling as they were recruited online.

Materials

The study used questionnaires which included three scales related to each variable, and demographic questions. The survey was created using Google forms. The age was collected in order to manually screen out participants under 18.

Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman & Kupfer, 1989) for assessing sleep quality (Appendix E)

Social Networking Time Use Scale (SONTUS; Olufadi, 2016) for assessing social media usage (Appendix F)

Internet Gaming Disorder Scale- Short Form (IGDS9-SF; Pontes & Griffiths, 2015) for assessing online gaming usage (Appendix G)

Design

The study is a simple random sampling design. There are three variables; two predictor variables (PVs), social media use and Internet gaming, and one criterion variable

(CV), sleep quality. The third research question used a between-subjects design as genders were compared with the variables; social media use, sleep quality, and internet gaming.

Procedure

The surveys (created on Google forms) will be sent via a link on different social media platforms such as Instagram, Snapchat, Facebook, etc., and accessed to those who are interested to voluntarily to take part in the survey. The link can be also sent to friends and/or family members directly. The survey is directed to participants above 18 and users to social media. Once the participants receive the link, they would click on it and they would be directed to the survey. The first thing that will appear is a 'Participant Information Sheet.' This page will inform the participants of the research project title, contact information, that their participation in this study is voluntary, and the information they provide will be confidential (refer to appendix B). After they select the required field, a consent form will appear. The form will outline the experimenter's name, duration, and the participants confirmation that is required to accept to these terms to continue the survey (refer to appendix C). Once the survey begins, questions based on demographics are asked first, i.e., age and gender. After that, they will complete a questionnaire on Social Media usage, poor sleep quality and internet gaming. Once all the questionnaires have been complete, a Debriefing Form will appear where it states any contact information for potential questions and a confirmation box will be checked in order to end the survey and submit the data. All data collected were followed by the ethical guidelines of NCI. All information regarding informed consent of the study and confidentiality were stated in the survey.

Results

Descriptive statistics

There were 34 participants involved in this study. The sample consisted of 13 (38.2%) males and 21 (61.8%) females. The results for all continuous variables are presented in Table 1.

Table 1

Descriptive statistics for continuous variables

Variable	M [95% CI]	SD	Range
Sleep Quality	7.68 [6.61, 8.74]	3.05	12
Internet gaming	16.59 [13.83, 19.34]	7.89	32
Social Media Use	2.68[2.47, 2.88]	0.59	2

Inferential Statistics

Preliminary analyses were performed to ensure no violation of the assumptions of normality however social media use and internet gaming was non normally distributed. Therefore, a non-parametric Spearman correlation coefficient was computed instead of Pearson correlation coefficient for social media use, Internet Gaming, and Sleep Quality. There was a weak, positive correlation between the two variables social media use and sleep quality ($r = .21$, $n = 34$, $p = 0.234$). This indicates that the two variables shared approximately 4% of the variance in common. There was a non-significant correlation between sleep quality and social media use.

Table 2

Correlation between continuous variables

Variable	1.	2.	3.
1. Internet Gaming	-		
2. Sleep Quality	.257	-	
3. Social Media Use	.014	.210	-

Multiple regression analysis was performed to determine how well Sleep quality could be explained by Internet gaming and Social media use. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. The correlations between the predictor variables and the criterion variable included in the study were examined (see Table 3). Since no a priori hypotheses had been made to determine the order of entry of the predictor variables, a direct method was used for the analysis. The two predictor variables explained 13.2% of variance in Sleep quality levels ($F(2, 31) = 2.37$, $p = .111$). Between the two variables there was no statistical significance.

Table 3

Standard multiple regression table predicting Sleep Quality total score

Variable	R^2	B	SE	β	*t*	*p*
Model	.132					
Internet Gaming		.13	.07	.33	1.96	.060
Social media use		.62	.87	.12	.71	.484

Levene's test for equality of variance was non-significant for Sleep quality ($p = .59$) and Internet gaming ($p = .29$) which the data does not violate the assumption of homogeneity

of variance. Equal variance was not assumed for Social media use. An independent samples t-test was conducted to compare levels of Sleep between males and females. There was a no significant difference in scores, with males (M = 6.54, SD = 3.18) scoring lower than females (M = 8.38, SD = 2.82), t(32) = -1.76, p = .087, two-tailed.

Another independent samples t-test was conducted to compare levels of Internet gaming between males and females. There was a no significant difference in scores, with males (M = 19.23, SD = 8.32) scoring higher than females (M = 14.95, SD = 7.35), t(32) = 1.57, p = .126, two-tailed.

A non-parametric Mann-Whitney U test was conducted to compare social media usage among males and females. There was a significant difference in scores, with males (M = 2.38, SD = .65) scoring significantly lower than females (M = 2.86, SD = .48), t(20) = -2.27, p = .035, two-tailed. The magnitude of the differences in the means (mean difference = -.47, 95% CI: -.04, -.91) was high (Cohen’s d = -0.85).

To summarise, there was no significant correlation between Sleep quality, internet gaming, and social media. Sleep quality is not predicted by the amount of time spent on social media or online gaming. Social media was significantly higher for females than in males.

Discussion

The current study was to provide an understanding and existing relationships of Social Media Usage and Internet Gaming on Poor Sleep Quality. For the first hypotheses, the results state that there is no correlation between Social Media Usage, Internet Gaming and Poor Sleep Quality. However multiple studies states that social media users experience poor sleep quality (Long Xu et al.,2015). Similar results are seen in internet gaming and poor sleep quality studies. The second hypotheses, results show that sleep quality is not predicted by amount of time spent on social media. Studies show that social media usage is associated with poor sleep quality (Woods & Scott, 2016). Third hypotheses suggests that females use social media significantly higher than makes.

Findings are inconsistent with relevant and existing research due to multiple limitations. Firstly, the sample size is small which didn't provide a scientific importance. The duration of the questionnaire was long which therefore demotivated many participants to finish or answer truthfully. In the survey, a tick box confirming the participants is over eighteen, can be used instead of collecting the age variable and manually excluding participants under that age.

Future research could implement a larger sample size, for a higher scientific value. A bettered structured survey with up-to-date questionnaires and the overall duration to be shortened. Implementing more specific variables, such as social media on a mobile device or specific applications, or internet gaming on consoles or smart phones, can improve the understanding and the relation to poor sleep quality. Age differences can be implemented to the current study for a broader understanding.

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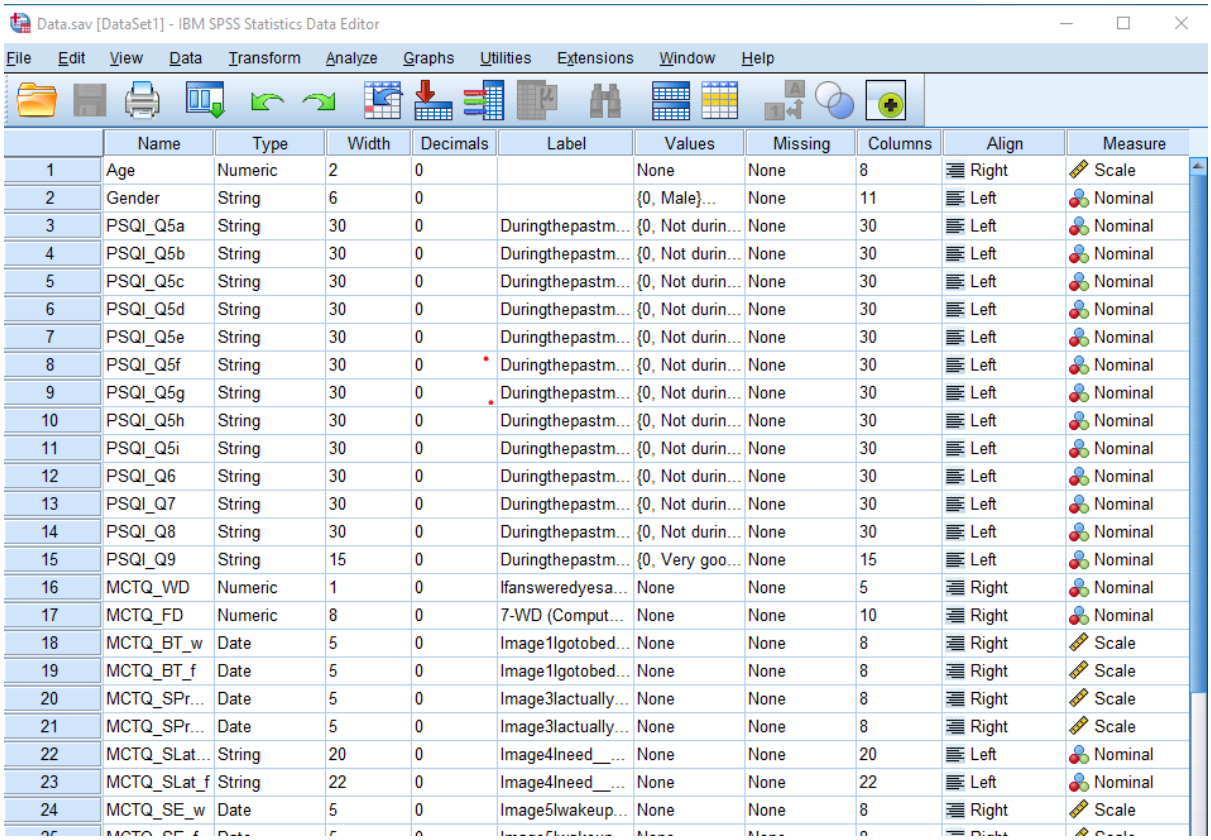
Appendix

Appendix A: Evidence of Data

Evidence of data (full data file available upon request)


Data.sav [DataSet1] - IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Graphs Utilities Extensions Window Help

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	Age	Numeric	2	0		None	None	8	Right	Scale
2	Gender	String	6	0		{0, Male}...	None	11	Left	Nominal
3	PSQI_Q5a	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
4	PSQI_Q5b	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
5	PSQI_Q5c	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
6	PSQI_Q5d	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
7	PSQI_Q5e	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
8	PSQI_Q5f	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
9	PSQI_Q5g	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
10	PSQI_Q5h	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
11	PSQI_Q5i	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
12	PSQI_Q6	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
13	PSQI_Q7	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
14	PSQI_Q8	String	30	0	Duringthepastm...	{0, Not durin...	None	30	Left	Nominal
15	PSQI_Q9	String	15	0	Duringthepastm...	{0, Very goo...	None	15	Left	Nominal
16	MCTQ_WD	Numeric	1	0	Ifansweredyesa...	None	None	5	Right	Nominal
17	MCTQ_FD	Numeric	8	0	7-WD (Comput...	None	None	10	Right	Nominal
18	MCTQ_BT_w	Date	5	0	Image1Igotobed...	None	None	8	Right	Scale
19	MCTQ_BT_f	Date	5	0	Image1Igotobed...	None	None	8	Right	Scale
20	MCTQ_SPr...	Date	5	0	Image3Iactually...	None	None	8	Right	Scale
21	MCTQ_SPr...	Date	5	0	Image3Iactually...	None	None	8	Right	Scale
22	MCTQ_SLat...	String	20	0	Image4Ineed__...	None	None	20	Left	Nominal
23	MCTQ_SLat_f	String	22	0	Image4Ineed__...	None	None	22	Left	Nominal
24	MCTQ_SE_w	Date	5	0	Image5Iwakeup...	None	None	8	Right	Scale

Appendix B: Participation Information Sheet

Title of Project: Investigating the Relationship Between Social Media Usage and Internet Gaming on Poor Sleep Quality; Gender Differences

You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being conducted and what it will involve. Please take the time to read the following information carefully and decide if you want to take part in this study. You will be asked to complete a survey which will last less than 30 minutes.

Do I have to take part?

Participation in this study is totally voluntary, you are under no obligation to take part in this study. The data that you provide will be very useful for the study. If you decide to take part you will be asked to complete a consent form. You have the right to withdraw from the study at any time and without giving a reason.

What happens to the information I provide?

The information you provide will be confidential and your identity will be anonymous. The data cannot be withdrawn after participation is complete as it is fully anonymized. No one apart from the researcher and supervisor (names given below) will have access to the information you provide. Your consent form will be digitally saved. Once the data is analysed a report of the findings may be submitted for publication. Only broad trends will be reported and it will not be possible to identify any individuals. A summary of the results will be available from the researcher on request once the study is complete. If you have any questions or require any further information, please contact the experimenter or research supervisor.

Researcher's details: Stephan Nastasa; stefnastas@gmail.com

Supervisor details: Michael Cleary-Gaffney; michael.cleary-gaffney@ncirl.ie

Appendix C: Consent Form

Thank you for your interest in this project. Just to remind you, the data you provide in the course of this project will be treated in the strictest confidence and will be used for research purposes only. Furthermore, as a participant in this research you will never be identified in any outputs (e.g., reports, research articles) that arise from this project and your data will never be identifiable or viewed by any other party outside the research team.

Title of Experiment: Investigating the Relationship Between Social Media Usage and Internet Gaming on Poor Sleep Quality; Gender Differences

Duration: 25-30min

Name of Experimenter: Stephan Nastasa

Please tick boxes:

1. I confirm that I have read and understand the information for the above study.

2. I understand that my participation is voluntary and that I am free to withdraw during the survey, without giving any reason.

3. I agree to take part in the above study.

Appendix D: Debriefing Form

Thank you for completing the survey as a research participant in the present study concerning your view on social media usage and poor sleep quality. The present study tests whether social media usage effects poor sleep quality.

We greatly appreciate your cooperation. If you have any questions regarding this study, please feel free to ask the researcher at this time. Email: stefnastas@gmail.com

Thanks again for your participation.

Please tick the box once you have read the debriefing form to end this survey □

Appendix E: Sleep Quality Index

The Pittsburgh Sleep Quality Index (PSQI)

Instructions: The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions. During the past month,

1. When have you usually gone to bed? _____
2. How long (in minutes) has it taken you to fall asleep each night? _____
3. When have you usually gotten up in the morning? _____
4. How many hours of actual sleep do you get at night? (This may be different than the number of hours you spend in bed) _____

5. During the past month, how often have you had trouble sleeping because you…	Not during the past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times week (3)
a. Cannot get to sleep within 30 minutes				
b. Wake up in the middle of the night or early morning				
c. Have to get up to use the bathroom				
d. Cannot breathe comfortably				
e. Cough or snore loudly				
f. Feel too cold				
g. Feel too hot				
h. Have bad dreams				
i. Have pain				
j. Other reason(s), please describe, including how often you have had trouble sleeping because of this reason(s):				
6. During the past month, how often have you taken medicine (prescribed or "over the counter") to help you sleep?				
7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?				
8. During the past month, how much of a problem has it been for you to keep up enthusiasm to get things done?				
	Very good (0)	Fairly good (1)	Fairly bad (2)	Very bad (3)
9. During the past month, how would you rate your sleep quality overall?				

Component 1	#9 Score	C1_____
Component 2	#2 Score (≤15min=0; 16-30 min=1; 31-60 min=2, >60 min=3) + #5a Score (if sum is equal 0=0; 1-2=1; 3-4=2; 5-6=3)	C2_____
Component 3	#4 Score (>7=0; 6-7=1; 5-6=2; <5=3)	C3_____
Component 4	(total # of hours asleep)/(total # of hours in bed) x 100 >85%=0, 75%-84%=1, 65%-74%=2, <65%=3	C4_____
Component 5	Sum of Scores #5b to #5j (0=0; 1-9=1; 10-18=2; 19-27=3)	C5_____
Component 6	#6 Score	C6_____
Component 7	#7 Score + #8 Score (0=0; 1-2=1; 3-4=2; 5-6=3)	C7_____

Add the seven component scores together _____ **Global PSQI Score** _____

Appendix F: Social Media

Appendix (*continued*)

Items	1	2	3	4	5	6	7	8	9	10	11
homework											
31. When you are at a seminar/workshop or training program											
32. When you are doing school or job-related assignment at home											
33. Watching academic-related video lectures or those related to your job											
34. When you are sitting in a religious place (e.g., church, mosque) to learn about your religion											
35. When you need to reduce your mental stress											
36. When you want to reduce the pressure of your daily routines											
37. When you have emotional worries											
38. When you have gone through a lot of stress											
39. When you are trying to forget your financial challenges											
40. When you need to reduce your emotional stress											
41. When you need to reduce your physical stress											
42. When you need to find people you haven't seen for a while											
43. When you need to find out more about people you met offline											
44. When you need to communicate with your families and friends											
45. When you need to maintain contact with existing friends											
46. When you are cooking											
47. When you are eating or drinking at home											
48. When you are dressing up for class or office											
49. When you wake up in the morning											
50. When you wake up in the midnight and couldn't sleep again											
51. When you are on a queue for at least 2 min											
52. When you are in a meeting											

Table A2. Social networking time use scale (SONTUS).

	Item	1	2	3	4	5	6	7	8	9	10	11
1	When you are at a seminar/workshop or training program											
2	When you are at home sitting idly											
3	When you need to reduce your mental stress											
4	When you go to the stadium to watch football, basketball etc.											
5	When you are doing school or job-related assignment at home											
6	When you are waiting for someone (e.g., friends) either in their house or at a pre-arranged place											
7	When you are listening to music, radio, religious lectures etc.											
8	When you have gone through a lot of stress											
9	When you are in a meeting											
10	When you are in the class receiving lecture											
11	When you need to maintain contact with existing friends											
12	When you are in bed about to sleep											
13	When you are reading in the library for academic purpose e.g., recommended text for class											
14	When you are at a place to repair your car, house appliances, etc.											
15	When you need to reduce your emotional stress											
16	When you want to reduce the pressure of your daily routines											
17	When you are at a social gathering like wedding ceremony, birthday party, reception etc.											
18	When you need to communicate with your families and friends											
19	When you are sitting in a religious place (e.g., church, mosque) and activities like sermon or prayer is yet to start											
20	When you need to find out more about people you met offline											
21	When you are in the company of friends/family/colleagues having fun											

(*continued on next page*)

Appendix *(continued)*

	Item	1	2	3	4	5	6	7	8	9	10	11
22	When you are watching TV, news, football, films, sports, etc.											
23	When you go to the cinema house to watch movie(s)											
24	When you are a passenger in a car/bus/train for at least 2 min											
25	When you need to find people you haven't seen for a while											
26	When you are waiting for your boss in her office for at least 2 min when she is not attending to you											
27	When you are trying to forget your financial challenges											
28	When you are online doing school or job-related works e.g., project, homework											
29	Watching academic-related video lectures or those related to your job											

Appendix Scoring. of the SONTUS

In scoring the SONTUS, five component scores are derived. The components scores are summed to produce a global score that ranges from 5 to 23. This approach is in line with the results of our confirmatory factor analysis, which reveals a 5 first-order factors with a 1 second-order factor as the best model for the SNOTUS construct.

Coding Instruction: each and every items in SONTUS is coded as follows:

1 = if a respondent select the Likert scale 1–3.
2 = if a respondent select the Likert scale 4– 6.
3 = if a respondent select the Likert scale 7–9.
4 = if a respondent select the Likert scale 10 or 11.

Component 1: relaxation and free periods.

Sum of items 2, 6, 7, 12, 14, 21, 22, 24 and 26 scores	Component 1 score
9–12	1
13–16	2
17–20	3
21–24	4
25–28	5
29–32	6
>32	7

Component 2: academic-related periods

Sum of items 1, 5, 10, 13, 28, and 29 scores	Component 2 score
6–9	1
10–13	2
14–17	3
18–21	4
>32	5

Component 3: public-places-related use.

Sum of items 4, 9, 17, 19, and 23 scores	Component 3 score
5–8	1
9–12	2
13–16	3
17–20	4

Appendix

Kindly use the scale below to indicate how often you always use the social networking sites like Facebook, Instagram, WhatsApp, Twitter, Myspace, Pinterest etc., during the past week in the following situations and places:

1 = Not applicable to me during the past week.
2 = I never used it during the past week.
3 = I used it once during the past week but spend less than 10 min.
4 = I used it once during the past week but spend between 10 and 30 min.
5 = I used it once during the past week but spent more than 30 min.
6 = I used it between 2 and 3 times during the past week but spend less than 10 min each time.
7 = I used it between 2 and 3 times during the past week but spend between 10 and 30 min each time.
8 = I used it between 2 and 3 times during the past week but spent more than 30 min each time.
9 = I used it more than 3 times during the past week but spend less than 10 min each time.
10 = I used it more than 3 times during the past week but spend between 10 and 30 min each time.
11 = I used it more than 3 times during the past week but spent more than 30 min each time.

Table A1. The 52 items used for the factor analysis.

Items	1	2	3	4	5	6	7	8	9	10	11
1. When you are at home sitting idly											
2. When you are watching TV, news, football, films, sports, etc.											
3. When you are in the office but idle											
4. When you are waiting for someone (e.g., friends) either in their house or at a pre-arranged place											
5. When you are waiting for a bus/train at the bus/train station											
6. When you are in the company of friends/family/colleagues having fun											
7. When you are at a place to repair your car, house appliances, etc.											
8. As a driver when trapped in heavy traffic for at least 2 min											
9. When you are eating or drinking outside your home e.g., cafeteria											
10. When you are relaxing											
11. When you are in bed about to sleep											
12. When you are at the clinic/hospital waiting to be attended to by the doctor											
13. When you are listening to music, radio, religious lectures etc.											
14. When you are a passenger in a car/bus/train for at least 2 min											
15. When you are waiting for your boss in her office for at least 2 min when she is not attending to you											
16. When you are at the market, shopping mall etc.											
17. When you are sitting in a religious place (e.g., church/mosque) and religious activities like prayer or sermon is in progress											
18. When you are at the place of work with a lot of work to do											
19. When you are at the clinic/hospital receiving treatment											
20. When you are sitting in a religious place (e.g., church, mosque) and activities like sermon or prayer is yet to start											
21. When you are walking on the street, road-side, class corridors etc.											
22. When you go to the stadium to watch football, basketball etc.											
23. When you are reading in the library for non-academic purpose e.g., reading the newspaper											
24. When you are at a social gathering like *(wedding ceremony, birthday party, reception etc)											
25. hen you go to the cinema house to watch movie(s)											
26. When you are in the class receiving lecture											
27. When you are reading/studying for academic purpose outside the library e.g., at home											
28. When you are reading in the library for academic purpose e.g., recommended text for class											
29. When you are reading or studying something related to your work/job											
30. When you are online doing school or job-related works e.g., project,											

Appendix G: Internet Gaming Usage

Internet Gaming Disorder Scale–Short-Form (IGDS9-SF) (Pontes & Griffiths, 2015)

Instructions: These questions will ask you about your gaming activity during the past year (i.e., last 12 months). By gaming activity we understand any gaming-related activity that has been played either from a computer/laptop or from a gaming console or any other kind of device (e.g., mobile phone, tablet, etc.) both online and/or offline.

	Never	Rarely	Sometimes	Often	Very Often
1. Do you feel preoccupied with your gaming behavior? (Some examples: Do you think about previous gaming activity or anticipate the next gaming session? Do you think gaming has become the dominant activity in your daily life?)	○	○	○	○	○
2. Do you feel more irritability, anxiety or even sadness when you try to either reduce or stop your gaming activity?	○	○	○	○	○
3. Do you feel the need to spend increasing amount of time engaged gaming in order to achieve satisfaction or pleasure?	○	○	○	○	○
4. Do you systematically fail when trying to control or cease your gaming activity?	○	○	○	○	○
5. Have you lost interests in previous hobbies and other entertainment activities as a result of your engagement with the game?	○	○	○	○	○
6. Have you continued your gaming activity despite knowing it was causing problems between you and other people?	○	○	○	○	○
7. Have you deceived any of your family members, therapists or others because the amount of your gaming activity?	○	○	○	○	○
8. Do you play in order to temporarily escape or relieve a negative mood (e.g., helplessness, guilt, anxiety)?	○	○	○	○	○
9. Have you jeopardized or lost an important relationship, job or an educational or career opportunity because of your gaming activity?	○	○	○	○	○