

The Role of Fear of Missing Out in the Prediction of Internet Addiction Among Adolescents

Abstract

One of humanity's most recent and technologically advanced accomplishments is the Internet, which consists of a vast network of various communications. Social media platforms are becoming among the most crucial instruments for communication in our society and throughout the globe. Fear of missing out is a psychological factor that impacts social network usage. This study aimed to establish the link between Internet addiction and fear of missing out among adolescents in Qazvin.

The research population was all secondary school students. Among them, 210 individuals (105 girls and 105 boys) were chosen as the minimal number of samples by convenience sampling. They were examined using fear of missing out (Przybylski et al., 2013) and Internet Addiction questionnaires (Yang, 1998). Statistical correlation and linear regression tests were used to examine the research data. There was a significant and positive relationship between fear of missing out and Internet addiction, according to a linear regression test ($P < 0.1$). The standardized coefficient of the relationship between fear of missing out and Internet addiction is also higher in girls than in boys, according to the linear regression test, with a coefficient of 0.293 compared to 0.249. Both coefficients are significant with $P < 0.01$.

Given the significant link between Internet addiction and the fear of failure among teenagers in Qazvin, it is essential to provide them with the relationship and culture necessary to use the Internet properly. Students should also be taught the right way to use the Internet.

Keywords: *Fear of missing out, Internet addiction, Teenagers, Social networks, Qazvin*

1. Seyede Fateme Farzan

*Master's degree of Psychology,
Faculty of Psychology and
Education, Allameh Tabataba'i
University, Tehran, Iran
Corresponding Author's
email: farzanfateme@gmail.com*

2. Faramarz Sohrabi

*Professor of Clinical Psychology,
Department of Clinical Psychology,
Allameh Tabataba'i
University, Tehran, Iran*

3. Zohreh Rafezi

*Assistant Professor of Clinical
Psychology Department, Faculty of
Psychology and Education, Allameh
Tabataba'i University, Tehran, Iran*

Introduction

Fear of missing out is a pervasive apprehension analogous to the propensity to develop distress at losing others' valuable experiences (Przybylski, A, Murayama, K, Dehaan, C, Gladwell, V, 2013). Teenagers' study time is reduced, and the educational process is disrupted by social networks, even though social networks facilitate communication. Anxiety and stress are additional harmful effects (Tandon, 2020).

The need to continually stay connected to what others are doing and the fear of missing out are two factors that contribute to using social networks. Social anxiety has been described as the feeling of being excluded from social activities, and it manifests itself in people when they believe they are oblivious to these activities. Participation in social networks is particularly appealing to individuals who dread loss; as a result, they often manage their cyberspace sites. Social media's widespread use and the accessibility of smartphones are two crucial variables that feed the fear of missing out. Fear of missing out is related to unpleasant emotional states such as loneliness, boredom, and a bad attitude or depression (Bayrami, Moghadam Tabrizi, Talebi, and Ebrahimi, 2019).

Recent studies have consistently found that disorders like Internet addiction, smartphone addiction, and social media addiction may be predicted using a person's fear of missing out. The similarities between behavioral addiction and drug use disorders have been the subject of considerable research, particularly the similarities between substance use disorders and certain Internet-related conditions like Internet Communication Disorder. The symptoms of Internet use

disorder are similar to those of behavioral addiction. They include the loss of control, relapse, withdrawal, tolerance, preoccupation, neglect of interests, and adverse effects on social, academic, and personal life (2014) Llera and Newman). In Wegmann's 2017 study on the fear of missing out, a sample of 270 individuals and a structural model was utilized to investigate the role of the fear of missing out resulting from Internet programs in the onset of symptoms of an Internet communication disorder. The findings show that users who use more Internet programs fear missing out on Internet communication programs and are more likely to employ those programs as effective coping mechanisms. In the same year (2017), Raine and Desi used a consolidated model to assess the mediating effect of loss aversion in a survey of 402 adolescents. Structural equation modeling revealed that an increase in the demand for belonging and the need for popularity is related to an increase in Facebook usage. Increased stress due to Facebook use was linked to an increased fear of missing out. These results emphasize the importance of fear of missing out on adolescent media use and well-being.

There has been limited research on the fear of missing out in Iran. However, Seyyed Valiullah Mousavi has been a pioneer in assessing teenage Internet addiction rates. During a study on Internet addiction among Iranian adolescents in the spring of 2018, intriguing results were discovered, and we will examine the significance of research in this area. Internet addiction as one of the addictive behaviors is associated with detrimental

intrapersonal and interpersonal outcomes (quoted by Bayrami, 2019).

This cross-sectional study's statistical population comprised all Iranian adolescents and young adults. Iran was divided into five clusters (north, south, center, east, and west) for sampling purposes; subsequently, one province was randomly assigned to each cluster, and study instruments were delivered voluntarily to adolescents and young adults in the province's center. This study included 1491 samples who answered Yang's demographic profile and internet addiction questionnaire. 2.4% of the population suffers from serious internet addiction. It is 2.9% for boys and 2.2% for girls in gender, 2.5% for teenagers, and 2.3% for young adults, although these differences were not significant. There is no difference in the average score of Internet addiction between the two groups of girls (2.2%) and boys (2.9%). Still, there is a difference between the two groups of adolescents and young adults and the average Internet score. Young adults (2.3%) have somewhat higher addiction rates than teens (2.5%). Popular social media networks include Telegram, Instagram, and WhatsApp, and the fundamental reasons for utilizing virtual social networks are to interact with friends and keep up with the news (Kheradmand, 2017).

Although there is a low rate of severe internet addiction among teenagers and young adults, the present study's key finding is the prevalence of mild to moderate internet addiction within this age group. In the Gezgin D.M. research from 2018, two measures of smartphone addiction and fear of missing out were examined among a study group made up of 161 teenagers from two high schools in Turkey. This qualitative study uses Pearson correlation and stepwise multiple regression statistical tests based on a cross-sectional research method. The results indicate a positive relationship between student age, the length of time social smartphones are used daily, smartphone ownership, and the fear of missing out and dependence on smartphones.

According to the findings of 2020 research done among Chinese university students, the fear of missing out and smartphone addiction are somewhat connected. People with high negative affect are likely to experience high levels of fear of missing out and are more likely to be addicted to smartphones. These results prove controlling emotions, avoiding smartphone addiction, and enhancing sleep (Li L, Mark D. Griffiths, Mei. S and Niu. ZH, 2020).

Internet and social media usage has surged since the global covid-19 outbreak due to social distancing. Lack of physical contact might minimize the transmission of this disease, but social distancing may endanger communication, one of the psychological demands (Close and Leliaut 2021).

With the growing use of social media in this period, the amount of internet usage and, as a consequence, internet addiction has

increased, particularly among teenagers, which leads to fear of missing out anxiety, and the chance of its development has increased due to social distancing. This study aimed to examine the relationship between fear of missing out and Internet addiction in boys and girls in Qazvin. The research questions are as follows:

- What is the relationship between fear of missing out and Internet addiction among girls and boys in Qazvin?
- Is the fear of missing out more related to internet addiction in girls or boys?

Research Methods

The current study applied correlational research. The statistical research population includes nine boys' and eight girls' schools in districts 1 and 2 of Qazvin at the secondary level in 2020-2021. This study was conducted in June 2021. There were 1100 female students and 1200 male students.

The minimal number of study samples was calculated to be 210 utilizing the Green method to determine sample size (Werner S. Weiglhofer 1994). Considering that the fear of missing out on the questionnaire was used for the first time in Iran to prevent the loss of samples and to generalize the questionnaire results with greater confidence, all respondents who participated in the study were considered samples. The study participants were 535, comprising 379 female and 156 male students. The criteria and predictor variables of the research employed the regression analysis approach of the linear regression type. Then Pearson's correlation coefficient method was also used. The distribution of the variables was assessed for normality using the Kolmogorov-Smirnov test.

Due to the unsuitability of Pearson's correlation coefficient method for the variables, Spearman's correlation coefficient method was used. The standard coefficients of the variables were determined using a regression model. The analysis was started using the results of statistical tests and preparing relevant statistical charts, and the research hypotheses were tested.

Research Tools

1- Fear of Missing Out Questionnaire

This questionnaire was designed and developed by Przybylski et al. in 2013. It contains ten positive items and evaluates each person's fear of missing out using a 5-point Likert scale. The scoring of each item is as follows: " Never true about me." One score, " Slightly true about me." Two scores, "Moderately true about me." Three scores, " Strongly true about me." Four scores, and " Very Strongly true about me." Five scores. These ten items were then used to determine each student's FOMO score. This variable is between 10 and 50, with a higher score indicating greater fear of missing out. Przybylski et al. (2013) estimated the internal consistency of the questionnaire's items using Cronbach's alpha ($\alpha = 0.90$).

In this research, Cronbach's alpha coefficient for fear of missing out on the questionnaire was ($\alpha = 0.710$).

2- Internet Addiction Questionnaire

In this regard, Yang's internet addiction questionnaire—one of the trustworthy instruments in this field—was utilized. It has 20 items, and the participant must respond on a Likert scale ranging from rarely (zero) to always (one) (5). A score of 0 to 30 is regarded as non-addicted to the Internet and a regular user; a score of 31 to 49 is considered mild internet addiction; a score of 50 to 79 is considered moderate internet addiction, and a score of 80 or more is considered severe internet addiction. During a reliability check, this questionnaire was calculated using Cronbach's alpha coefficient of 0.79.

In their research for the Persian version of the questionnaire, Alavi et al. (2010) identified five factors: spending too much time on the Internet, utilizing the Internet to achieve mental peace, salience, pathological usage of chat rooms, and neglecting work and academic responsibilities. In addition, content and differential validity ($r=0.5$) and three forms of reliability (retest $r=0.79$), internal consistency ($\alpha=0.88$), and partiality ($r=0.82$) were determined for this questionnaire (Shahbazi Rad and Mirderikvand, 2013).

Table 1- Descriptive statistics of independent variable fear of missing out in three groups of girls, boys, and all students

Group	Mean	Standard deviation	Median	Minima	Maxima	Number
Fear of Missing Out						
Girls	21.21	5.37	21	11	36	379
Boys	20.53	5.88	19	10	37	156
All	20.96	5.53	20	10	37	535
Internet Addiction						
Girls	39.06	14.64	36	20	85	379
Boys	37.89	13.90	35	20	80	156
All	38.72	14.42	36	20	85	535

Table 1 illustrates the mean FOMO score for all students and male and female students separately. The mean score of fear of missing out in girls is 21.21 ± 5.37 more than in boys' 20.53 ± 5.88 . All students' mean score of fear of missing out equals 20.96 ± 5.53 . Also, the mean of internet addiction in female students is 39.06 ± 14.64 more than that of male students, 37.89 ± 13.90 , and the average internet addiction score of all students is 38.72 ± 14.42 .

Correlation Test

The Kolmogorov-Smirnov test was used to determine the normality of the distribution of fear of missing out variables and Internet addiction before calculating the Pearson correlation coefficients, as shown in Table 2.

Table 2 - The results of the Kolmogorov-Smirnov test to check the normality of the distribution of fear of missing out and Internet addiction variables ($n=535$)

The internet addiction questionnaire in this study has a Cronbach's alpha coefficient of ($\alpha=0.924$).

Findings

Descriptive Results

Fear of Missing Out Questionnaire: This questionnaire consists of ten items that were assessed according to the procedure outlined in Chapter 3; the "fear of missing out" score for each student was determined. This score ranges between 10 and 50, with higher scores indicating greater loss aversion. Cronbach's alpha of 0.710, which indicates the acceptability of the internal consistency of this questionnaire, was used to determine the internal consistency of this questionnaire.

Internet Addiction Questionnaire: Each student's internet addiction score was determined based on 20 items. A higher score suggests more internet addiction. This questionnaire provides scores between 0 and 100. Cronbach's alpha was used to determine the internal consistency of this questionnaire, and the result was 0.924, which is excellent. Scores ranging from 20 to 49 show no Internet addiction, 50 to 79 imply Internet addiction, and 80 to 100 indicate Internet addiction.

Table 1 displays the results of these two questionnaires.

Variable	Mean	Standard deviation	t	Significance level
Fear of Missing Out	20.96	5.53	0.104	0.001
Internet Addiction	38.72	14.42	0.107	0.001

The null hypothesis in the Kolmogorov-Smirnov test is the assumption of normality of variable distribution. Table 4-7 shows that the significance level of all three variables is less than 0.01. As a result, the null hypothesis that the distribution of the variables is normal is not established. Therefore, Spearman's non-parametric test was used instead of Pearson's parametric test to obtain correlation coefficients, which are in Table 3.

Table 3 - Spearman's non-parametric test correlation coefficient between fear of missing out and internet addiction variables (n=535)

$P \leq 0.01^{**}$, $P \leq 0.05^*$

Variable	Fear of Missing Out	Internet Addiction
Fear of Missing Out	1	
	0.271**	1

Hypothesis Testing

The First Hypothesis: There is a relationship between fear of missing out and Internet addiction among Qazvin teenagers.

Table 3 demonstrates a significant and direct relationship between fear of missing out and Internet addiction, with a correlation coefficient of 0.27 and a significance level of less than 0.01; therefore, the research hypothesis is established and confirmed.

The Second Hypothesis: The correlation between fear of missing out and Internet addiction is higher in girls than boys. In this section, the second hypothesis was investigated using linear regression. The preceding section revealed a positive and significant correlation between fear of missing out and Internet addiction. A linear regression model was employed in this study to determine the coefficients of the relationship between the criterion variable of Internet addiction and the independent variable of fear of missing out. The findings are displayed in Table 4.

Table 4 - The results and coefficients of the linear regression between the independent variable of fear of missing out and the dependent variable of Internet addiction

Group	Regression coefficient			Regression results					
	β	t	P	R	R ² (Adj)	F	df	Significance level	DW ¹
Girls	0.293	5.958	0.000	0.293	0.084	35.492	377,1	0.001	1.842
Boys	0.249	3.189	0.002	0.249	0.056	10.168	154,1	0.002	2.090
All	0.281	6.764	0.000	0.281	0.077	45.750	533,1	0.001	1.908

Table 4 displays the results and linear regression coefficients between fear of missing out and Internet addiction. This table gives the values of the correlation coefficient (R) and adjusted determination coefficient (Adjusted R²). The closer these values are to 1, the more the model expresses the relationship between the dependent and independent variables. Therefore, the regression model explains a small proportion of variations in the dependent variable for both male and female students and all students.

The above table reveals that girls have a higher standard coefficient of the association between fear of missing out and Internet addiction than boys do, with a coefficient of 0.293 for girls and a coefficient of 0.249 for boys, both of which are significant with $P < 0.01$. Therefore, the second hypothesis, "The correlation between fear of missing out and Internet addiction is higher in girls than boys." is established. The standard coefficient of the relationship between fear of missing out and Internet addiction of all students is equal to 0.281 and is significant with a significance level of less than 0.01.

The three assumptions of linear independence of regression residuals, normality of distribution of regression residuals, and homogeneity of variance of regression residuals must be evaluated to determine the efficiency of linear regression coefficients. The Durbin-Watson statistic is used to check the residuals' linear independence. Whenever this statistic is 1.5 to 2.5, it means the linear independence of the regression residuals. The normality of the distribution of the residuals can

be checked using the Kolmogorov-Smirnov test on the residuals of the linear regression. Finally, the residuals' graph can be used according to their predicted values to check the homogeneity of the residuals' variance.

According to Table 5, the Durbin-Watson regression model statistics for three groups of girls, boys, and all students are between 1.5 and 2.5, establishing the first hypothesis of coefficient efficiency.

Table 5 - The results of the Kolmogorov-Smirnov test to determine the normality of the residual distribution of the regression model between the independent variable of fear of missing out and the dependent variable of Internet addiction

Group	Mean	Standard deviation	t	Significance level
Girls	0.000	13.991	0.103	0.001
Boys	0.000	13.459	0.121	0.001
All	0.000	13.838	0.106	0.001

Table 5 displays the results of the Kolmogorov test used to examine the normal distribution of the residuals from the regression models of these three groups. The significance level of all three groups is less than 0.01; therefore, the null hypothesis, the normality of the residuals' distribution, is not established. Since the second hypothesis is not established, these coefficients are unnecessary, and there is no need to check the second hypothesis. As a result, there is only a significant and positive relationship between Internet addiction

and the fear of missing out in students, which is higher in female students.

Conclusion

The first research question revealed a relationship between fear of missing out and Internet addiction among teenagers in Qazvin. The linear regression test showed a significant positive relationship between fear of missing out and Internet addiction ($P < 0.1$). Therefore, with the increase of the fear of missing out variable, the Internet addiction variable increases, confirming this hypothesis.

Following the second hypothesis, LiL, Griffiths, Mei, and Niu (2020), Wegmann E, Brand M (2016), and Hages and Bendell (2019) demonstrated in many research that the association between FOMO and Internet addiction is affected by negative and positive emotions. According to their research, fear of missing out contributes to Internet addiction when the user experiences negative feelings such as worry, tension, and despair. Fear of missing out is a barrier to positive feelings like happiness and fulfillment, resulting in Internet addiction.

Fear of missing out and smartphone addiction among Chinese university students are slightly connected, according to a study conducted in 2020 among Chinese university students. Negatively affected individuals are more prone to feel significant degrees of FOMO and smartphone addiction (Li L, Mark D. Griffiths, Songli Mei, and Ximin Niu, 2020).

To prove this hypothesis, Mesch (2004) studied the psychological effects of using social networks on 328 teenagers. He found that using the Internet takes much time because teenagers feel like they have to stay in cyberspace and on the Internet. These adolescents claim they are too busy to check their accounts when they spend more time on social networks. Mesch discovered in this study that mental preoccupation, worry, and the impulse to check are common mental symptoms among teenage users.

No findings contradicted this hypothesis, and it appears that fear of missing out can be a powerful predictor of Internet addiction.

Individuals with lower degrees of satisfaction with the fundamental psychological demands of competence (efficacy), autonomy (meaningful choice), and connection (related individuals) express higher levels of FOMO. Satiating cognitive requirements can protect against the fear of missing out. The more efficiently these demands are met in adolescents, the less fear of missing out and the internet addiction they will experience. There is a negative correlation between FOMO and general mood and life happiness. These relationships explain why the fear of missing out is associated with a decline in mood and a fall in life satisfaction and why reducing this fear is the only way to raise mood and life satisfaction.

Moreover, the relationship between FOMO and Internet addiction is higher in girls than boys. According to the linear

regression test, the standardized coefficient of the association between fear of missing out and Internet addiction is more prominent in girls (0.293) than in boys (0.249), and both values are significant with $P < 0.01$. Therefore, there is a significantly positive relationship between fear of missing out and internet addiction among students. This relationship is particularly prevalent among female students, and this hypothesis is confirmed. This research's findings are consistent with Nikos Xanidis & Catherine's (2016) research: A sample of 324 social networking site users, 29.6% male and 70.4% female from various nations and educational backgrounds, were selected to investigate the association between social networking site usage and cognitive impairment in daily life. According to the findings, social networking sites are related to higher cognitive impairment in daily life (Altuwairiqi, 2019). The more social networks help adolescents meet their demands for communication, independence, and competence, the better their sleep patterns and the less they are pushed to use the Internet.

Prior psychological problems accompany social network addiction. Typically, sadness and social anxiety are aspects of this disorder. The improper usage of social networks begins when people are introduced to social networks. This background pathology is a type of preparation and desire that initiates the onset of stress. However, several additional variables also contribute to the development or maintenance of the disorder:

1- A room, a chair, touching a keyboard, a mouse, a mobile phone, the sound of the computer starting up, or a cell phone are examples of conditioned agents that serve as behavioral reinforcers.

2- Cognitive dysfunction also applies, as inconsistent cognition in the context of the self and the outside world is the primary symptom of this condition. Beliefs such as the notion that people only have control over social networks, that they are only there for themselves, and that they can only be respected in social networks, as well as comparable cognitive beliefs, are problematic in their context. Users can use media to contrast their everyday lives with other people's memorable experiences. As a result, individuals begin to believe that others' lives are very different from their own, and their concept of what is "normal" alters. Social media offers a platform for boasting and develops into a place where people compete in little matters of daily life. People compare their experiences, and adolescents are always concerned about their lives lacking something (Rozgonjuk et al., 2020).

The function of gender in fear of missing out has not been highlighted in previous research, and all studies have either not included the gender element or found it useless. However, according to the present study, girls are more likely than boys to develop an internet addiction due to FOMO. This difference

is seen in the temperament and neurological traits of girls. On the other hand, anxiety and stress disorders are more prevalent among adolescents, particularly girls, than among boys.

Because the secondary-level students from Qazvin's first and second districts made up the study's sample, care should be used when extrapolating the results to the province's entire secondary student population. In future studies, the research sample may be selected from (North, South, East, and West) of Qazvin province using the clustering approach to be more accurately generalized to the entire province.

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References

- Alavi S, Merasi M, Janatifard F, Eslami M, Haghighi M. [The relationship between psychiatric symptoms with Internet addiction among students of Isfahan University]. *J Hamedan Uni Med Sci* 2010;17:57-65.(Persain).
- Bayrami Ruqiyeh, Moghadam Tabrizi, Fatemeh Talebi, Erfaneh and Ebrahimi Samira (2018). Examine the relationship between the fear of being marginalized and the use of social networks among Urmia University of Medical Sciences students. 355- Journal of Urmia College of Nursing and Midwifery, 17th volume, 5th issue, serial 118, August 2019, pp. 355-362.
- Werner S. Weiglhofer (1994). Analytic methods and free-space dyadic Green's functions, *Radio Science* (Volume: 28, Issue: 05, Sept.-Oct. 1994)-** Kheradmand, Farzaneh (2017). The relationship between mental health, sleep disorder and cognitive abilities with Internet and social network addiction in secondary school female students. Dissertation to receive a master's degree. Ardabil: University of Mohaghegh Ardabili.
- Gezgin, D. M. (2018). Understanding Patterns for Smartphone Addiction: Age, Sleep Duration, Social Network Use and Fear of Missing Out. *Cypriot Journal of Educational Sciences*, 13(2), 166-177.
- Li L, Griffiths MD, Mei S and Niu Z (2020). Fear of Missing Out and smartphone Addiction Mediates the Relationship Between Positive and negative Affect and Sleep Quality Among Chinese University Students. *Front. Psychiatry* 11:877. Doi:10.3389/fpsy.2020.00877
- Li L, Griffiths MD, Mei S and Niu Z (2020). Influences of smartphone addiction and negative affect on sleep quality among university students. *Chin J Public Health* 32(5):646-9. Doi: 10.11847/zggws2016-32-05-22
- Close, J. Lloyd, J (2021). Lifting the Lid on Loot-Boxes. Chance-Based Purchases in Video Games and the. Convergence of Gaming and Gambling. GambleAware, press.
- Przybylski, A.K., Murayama, K., DeHaan, C.R., Gladwell, V (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior* 29. 1841-1848
- Elisa Wegmann, Ursula Oberst, Benjamin Stodt, Matthias Brand. (2017, April 14). Online-specific fear of missing out and Internet-use expectancies contribute to symptoms of Internet communication disorder. *Addictive Behaviors Reports*, 33-42. doi:https://doi.org/10.1016/j.abrep.2017.04.001
- Latif I, Hughes AT, Bendall RC. (2019). Positive and negative affect mediate the influences of a maladaptive emotion regulation strategy on sleep quality. *Front Psychiatry* 10:628. Doi: 10.3389/fpsy.2019.00628
- Mesch G. (2004). Social relationship and Internet use among adolescents in Israel. *Social Science Quarterly* 2001; 82(2):329-39
- A.Tandon, P. (2020). Sleepless due to social media? Investigating problematic sleep due to social media and social media sleep hygiene. *Computers in Human Behavior*, 113-125.
- Llera, S. J., & Newman, M. G. (2014). Rethinking the role of worry in generalized anxiety disorder: evidence supporting a model of emotional contrast avoidance. *Behavior Therapy*, 45, 283e299
- E. Wegmann, U. (2017). Online-specific fear of missing out and Internet-use expectancies contribute to symptoms of Internet communication disorder. *Addictive Behaviors Reports*, 33-42.
- Ryan, R. M. & Deci, E. L. (2017). Self-determination theory: Basic psychological needs in motivation, development, and wellness. New York: Guilford Publishing.
- D.Rozgonjuk, C.Sindermann, J.D.Elhai, C.Montag. (2020). Fear of missing out (FOMO) and social media's impact on daily life and productivity at work: do WhatsApp, Facebook, Instagram, and Snapchat use disorders mediate that association? *Addictive Behaviors* Addictive Behaviors, 50-90.
- Altuwairiqi, M.; Jiang, N.; Ali, R. (2019). Problematic Attachment to Social Media: Five Behavioural Archetypes. *Int. J. Environ. Res. Public Heal.* 2019, 16, 2136.
- Nikos Xanidis, Catherine M. Brignell, The association between the use of social network sites, sleep quality and cognitive function during the day, *Computers in Human Behavior*, Volume 55, Part A, 2016, Pages 121-126, ISSN 0747-5632, https://doi.org/10.1016/j.chb.2015.09.004.