The Impact of Social Media Addiction on Self-Esteem, Attention Span, Sleep Quality and Phubbing Behavior

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ARTICLE INFO	ABSTRACT
	Communication through the social networks is integrated into the lives of people regardless of their age, for communication, leisure, and information purposes. However, a recent shift in trend has proven that the social tool is causing harm to relationships, well-being, and productivity. The purpose of this research is to examine the impact that social media has on self-esteem, attention span, sleep quality, and phubbing behavior of 316 participants of both sexes. While conducting the study, correlation analysis was done using the Bergen Social Media Addiction Scale (BSMAS), Rosenberg Self-Esteem Scale (RSES), Mind-Wandering Questionnaire (MWQ), Pittsburgh Sleep Quality Index (PSQI), and Phubbing Scale (PS). They found there was inverse relationship between social media addiction and self-esteem ($r=-.45$, $p<0.001$) and sleep quality ($r=-.29$, $p<0.001$) which mean that more time spent on social media leads to poor self-esteem and poor quality of sleep. Also, it was found that there was a significant positive correlation between social media addiction levels and mind-wandering, $F(179) = 34$, $P <0.001$; a positive correlation was also found between social media addiction and phubbing behavior $F(179) = 51$, $P <0.001$ indicating that high social media use equals high phubbing. It is therefore worth stressing that the study shows the possible mental health consequences of over-reliance on SNSs and the necessity to develop evidence-based strategies to address these detrimental effects.

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1. Introduction

The phrase "social media" refers to a variety of online programs that are designed to enable their users to not only generate and distribute material, but also engage with one another and share their personal experiences (Kaplan & Haenlein, 2010). For billions of people all over the world, social media platforms like Facebook, Instagram, Twitter, LinkedIn, Tik Tok, Snapchat, and YouTube have become indispensable and indispensable to our day-to-day lives. These sources allow us to reach out to pothers, stay updated with each other, share content on various topics and aid us in times where physical contact is inconvenient. Social media has advanced significantly through how we connect with others, share and indulge information, further leading to profound changes in interactions with individuals, business practises and different societal trends (Smith & Anderson, 2018). One of the main benefits of social media in our daily life is its potential in forming business opportunities. Large companies, firms along with entrepreneurs can take advantage of these platforms for marketing and advertising and reaching a broad audience through their targeted campaigns. Social media allows businesses to shape their advertisements in a way that is specific to demographics, interest and behaviours, equaling more effective marketing plans. With this precision, it helps companies boost their return on investment and increase stronger ties with potentials customers (Huang, 2017). However, despite social media having endless benefits, it is also known for having several detrimental effects on our mental and physical health (Kross et al., 2013). Younger population is increasingly getting addicted to social media these days. Although, DSM-V still doesn't recognize excessive and compulsive social media

usage as an "addiction", there are scholars and researchers who agree that such a usage is actually addiction and is quite similar to chemical addictions. By "social media addiction", we mean excessive use of these platforms which is beyond one's conscious control. Such a usage leads to significant impairment in daily functioning and psychological well-being. This addiction often manifests through an irresistible urge to engage with social media, neglecting personal, professional, and academic responsibilities. Users sometimes report withdrawal symptoms— associated with chemical addictions as well, such as anxiety or irritability, when they cannot access social media, indicating dependency (Andreassen & Pallesen, 2014).

One of the major harms is the impact it has on our self-esteem. Every so often, these platforms display an idealized version of reality, in which individuals only showcase the luxurious aspect of their lives. With this, individuals make unrealistic comparison and develop feelings of shortcomings about themselves, and they believe their lives do not live up to the seemingly perfect lives portrayed online. For example, how often have you viewed someone's profile and desired to resemble them? While also being blind to the fact that that individual was using filters and had gone under numerous cosmetic procedures to have that appearance. Through the usage of social media apps, we have created countless beauty standards that lead the younger population to despise themselves without realizing the reality. Moreover, another important factor that is disrupted due to excessive social media usage is our sleep patterns. The compulsion to always stay connected and updated can result in excessive screen time, especially before going to sleep that can further lead to late sleeping and late awakenings. Blue light that is emitted from our devices disrupt the production of melatonin, a hormone that is known for being vital in our circadian rhythms, resulting in individuals experiencing difficulty when trying to fall asleep and maintain a stable sleep cycle. In result , poor sleep quality can lead to a range of health issues.

Attention, as defined by psychologists, is the cognitive process of selectively concentrating on one aspect of the environment while ignoring other stimuli. It is a fundamental function that enables individuals to process information efficiently and respond appropriately to the demands of their surroundings. The famous psychologist of the beginning of the late twentieth century William James stated about attention that it is "the taking hold by the mind, in the way of clear and vivid sensation, of one out of what appear to be several possible objects of attention." (James, 1890). Hence, in the context of the present-day technological advancement, social media addiction has risen to a level of being a major distraction to attention specifically among students. The constant buzz and the stream of notifications, self-imposed and addictive loops and the desire for social approval on the online platforms like Instagram, Twitter and TikTok may prove detrimental to students' ability to focus. Jensen (2013) has gathered that through his research that the over-SNS use has negative effects such as reduced level of attention and poor academic achievement (Lin, Chung, & Lin, 2021), The term phubbing is a combined form of "phone" and "snubbing" and defines the contemporary type of behaviour which prescribes the priority of a mobile facility over the direct conversation of the people. This kind of behaviour, which is becoming more and more characteristic of today's Hi-Tech world, change radically the patterns of interaction in society. The constant call for the virtual always takes precedence over real-life dialogue, thus ceasing real-life interactions to let physical presence take the backseat. Indeed, social media addiction is strongly associated with increased phubbing, including the need to monitor what is happening around at all, periodic need to read updates, and, of course, the feeling of new notifications; in turn, online interactions can tend to consume one's attention, thereby distancing a person from face-to-face interactions. This allows the addiction to create a loop of dependency, making users have less actual interactions with others in person.

2.   Literature Review
2.1.   Relationship of Social Media Addiction with Self-Esteem
In the last couple of years, dependency on social networks has become a major issue and numerous studies have been carried out to establish the impact that such dependency has on several psychological outcomes such as self-esteem. Andreassen, Pallesen, and Griffiths (2017) revealed in his study that overuse of the different social media is related to poor self-esteem. That this association was particularly apparent in people who used media to gain approval from other people indicates that relying on social cues is damaging for one's self-esteem (Andreassen et al. , 2017). In a similar manner, Hawi and Samaha (2016) note that the addiction to social media has an inverse effect with the level of self-esteem amongst college students. Based on the study conducted by the researchers, those pupils with high degrees of social media addiction

were those who had lower self-esteem as compared to others. The research of Hawi and Samaha (2016) revealed that social networking could cause formation of negative self image besides having the potentiality of creating unrealistic expectation. Another related study done by Stapleton, Luiz, and Chatwin (2017) on the effect of Facebook on the self-esteem. The results revealed that the positive self-esteem scores were significantly negatively correlated with the frequency of checking and posting on the Facebook. The authors stated that it is possible where one constantly stays active in watching reels of others on instagram, they will start to feel useless and question their worth (Stapleton, Luiz, & Chatwin, 2017).

2.2.   Relationship of Social Media Addiction with Attention

Social media addiction consequence on attention has also been of great interest to researchers. Cain and Mitroff (2017) reveal the impact social media has on the participants' ability to concentrate. Here they revealed that higher SMI scores were associated with low self control and frequent distractions. The constant switching between tasks and the necessity to glance at Facebook or any other social network status updates were reported to be among the factors that led to this kind of deficit (Cain & Mitroff, 2017). In a similar manner, van der Schuur, Baumgartner, Sumter, and Valkenburg (2015) undertook a study that analysed the effect of social media on the cognitive control of adolescents. According to the study done by van der Schuur et al. (2015), it was established that young people with high scores for social media dependence had more problems with sustains attention and had higher impulse control. In another study, Junco (2012) attempted to determine the impact of Facebook on students' performance and cognitive skills. So he relates that students who spent almost all their time on their face book had more incidences of attention related problem, and lower level of academic performance in their projects. That is why focus on a single job for an appreciable period is hampered by the multitasking mentality which is characteristic for the use of social media (Junco, 2012).

2.3.   Social Media Addiction and Sleep Problems

A study was done by Levenson, Shensa, Sidani, Colditz, and Primack (2016) to determine the relationship between social media use and sleep disturbances especially among young adults. The investigations concluded that there was a direct correlation between the frequency of using social media and decrease in the quantity of the night sleep of the persons, including difficulties in falling asleep and night awakenings. Levenson et al. (2016) noted that due to the social stimulating nature of social media sites and exposure of the users to blue seeing LED electronic screens, the circadian rhythm may be disrupted. College students were the participants of the study conducted by Lin, Chung, and Lin (2021), and their research topic was devoted to the effects of social media addiction on the amount of sleep received by the respondents. As was revealed by Schneider's study using the Pittsburgh Sleep Quality Index (PSQI), students with higher level of social media dependency were seen to have poorer sleep quality. This was accompanied by increased sleep latency and decline in sleep efficiency, and increased level of dysfunction during the day. According to the authors, they believed that the use of SNS will lead to higher screen time and pre-sleep arousal that has been associated with sleep disorders (Lin, Chung, & Lin, 2021). Scott, Biello, and Woods (2019) also looked into how social media dependency affects sleep problems in teenagers in another study. Therefore and in accord with the results obtained it was demonstrated that the higher scores for the addiction to the social media the more severe sleeping disorders present in teenagers. They were defined as the difference in both decreased sleep quality and getting less sleep at night and more at other times of the day. As the authors asserted, Scott, Biello, and Woods (2019), the research assumption of the impact of social media participation circuit was based on an assumption that it would deliver disruption of sleep and delay bedtime.

2.4.   Social Media Addiction and Phubbing Behavior

Davey, Davey, and Singh (2018) wanted to know if there exists a correlation between the addiction on social media and the behavior that college students called phubbing. Overall, it was established that students who had higher tendency towards social media dependence had higher tendency toward phubbing defined as ignoring companions in favour of mobile phones. As stated by Davey, Davey, and Singh (2018), the compulsion binding users to social media application leads to their preference of virtual interaction before direct conversation; consequently, phubbing is promoted.

In a study by Karadağ et al. (2015) they sought to determine the levels of social media addiction and its correlation with phubbing behavior in adults. Using regression analysis the results showed the positive relationship between social is an addiction and phubbing. It was also noted that the participants who had higher levels of addiction inclined more towards phubbing which was due to the urge to stay interfaced with the social networking sites (Karadağ et al., 2015). Al-Saggaf and O'Donnell (2019) attempted to establish the level of phubbing in the romantic relationships. In the study, the researchers noted that the level of social media addiction had a direct impact in phubbing and one's overall relationship satisfaction. The excessive dependence on social networks interfered with the relationships with partners and caused strains and lower quality of the interactions (Al-Saggaf & O'Donnell, 2019).

2.3. Objectives
1. To investigate the impact of social media addiction on Self-esteem
2. To explore the relationship of social media addiction and attention
3. To evaluate the effect of social media addiction on sleep quality
4. To understand connection of social media addiction and phubbing behavior

2.5. Hypothesis
H1: There is no significant negative correlation between social media addiction and self-esteem
H2: There is no significant negative correlation between social media addiction and attention span
H3: There is no significant negative correlation between social media addiction and sleep quality
H4: There is no significant positive correlation between social media addiction and phubbing behavior

3. Methodology/Design
A cross-sectional research approach was used for this study. The data was collected through closed ended questionnaires.

3.1. Sample
A total (N=316) participated in this research. 172 of them were boys and 144 were girls. The age of the participants ranged between 18-35.

3.2. Tools
3.2.1. Sociodemographic Details
A performa was developed to collect demographic details such as age, gender, education level, ethnicity and marital status etc.

3.2.2. Bergen Social Media Addiction Scale (BSMAS) (Andreassen & Pallesen, 2014)
The Bergen Social Media Addiction Scale (BSMAS) was used to evaluate social media addiction. It consisted of six statements, each representing key aspects of addiction like prominence, mood changes, increasing use, withdrawal, conflict, and relapse. Participants rated their agreement with each statement on a five-point scale, where 1 meant "Very rarely" and 5 meant "Very often." Higher scores indicated a greater level of social media addiction (Andreassen et al., 2012).

3.2.3. Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965)
With the help of Rosenberg Self-Esteem Scale which was completed by 10 statements with the usage of the four-point Likert scale, scored from "Strongly agree" to "Strongly disagree" an individual's self-esteem level was assessed. The present measure in essence aimed at assessing one's 'global self-esteem' in order to measure an individual's broad level of self-appraisal, both positive and negative. Where a higher number represents a better level of self-esteem, the total scores that were possible were of thirty. These were Items 2, 5, 6, 8 and 9, but coded in the other direction.

The scoring of each item was a sum total one whereby the various items were added together to get the total score.

The score for the total self-esteem could vary from 10 to 40 with higher score indicating better self-esteem.

3.2.4. Phubbing Scale (Karadağ et al., 2015)

Subsequently, based on formal permission granted by the author,The Phubbing Scale served as the measure of phubbing behavior. There are 10 items and normally the response options are on a Likert type scale ranging from 1 (Never) to 5 (Always). In engaging the participants rate it in terms of frequency of relating to such behavior. It encompasses different aspects of phubbing including what the individual undergoes as a result of the vice and the extent of the preference of the use of the phone instead of a physical interaction. It has a high score which means that the respondent phubbed a lot. PS has high internal consistency reliability along with high concurrent validity in estimating the level of phubbing seen in social scenarios.

3.2.5. Mind-wandering Questionnaire (Mrazek, Franklin, Phillips, Baird, & Schooler, 2013)

The participants were given the MWQ, which is made of several items that seek to measure the degree to which the participants' mind wanders off the current task. This questionnaire yielded self-reported measure of mind-wandering frequency, which could then be compared with other continuous variables in the study like, social media addiction scores, self esteem and sleep quality. The MWQ quantifies its rate, or how often individuals' minds wander and for how long. It includes five aspects on a 7-point Li ket scale with 1 representing the option Almost never and 7 representing the option Almost always. Thus, it has satisfactory reliability and validity for the measurement of frequency of mind-wandering episodes.

3.2.6. Pittsburgh Sleep Quality Index (Buysse, Reynolds III, Monk, Berman, & Kupfer, 1989)

The Sleep Quality was measured using PSQI. It consists of 19 self-rated questions grouped into seven components, each scored 0 (no difficulty) to 3 (severe difficulty). The components are:

- Subjective sleep quality
- Sleep latency
- Sleep duration
- Habitual sleep efficiency
- Sleep disturbances
- Use of sleeping medication
- Daytime dysfunction

Participants rate different aspects of their sleep over a specific period, with higher scores generally indicating poorer sleep quality. It is highly reliable and valid for evaluating sleep quality and disturbances over a one-month interval.

3.3. Procedure

The participants were approached via google link and in person. They were briefed about the objective of the study and formal consent was obtained from them. BSMAS, RSES, phubbing scale, MWQ and PSQI were given to the participants. All protocols for gathering data were strictly followed.

3.4. Ethical Considerations
1. All the participants were assured that their data will be kept confidential and will only be used for research purposes.
2. All the participants provided their handfilled consent form.
3. All the scales were used after getting permission from the authors

4. Results

Table 1 indicates, age, gender, education level, marital status, social media accounts and time spent on social media.

This table shows that there was 54.43% male and 46.57% female representation in the sample. 75.94% of the participants were single and 57.59% had bachelors degrees. Every participant had at least 1 social media account. 67.08% of the participants were under 25. A good percentage of 31.96% of the participants use social media for 3-4 hours daily which is considerably a high number.

Table 1: Demographic Characteristics of Participants (N=316)

	F	%
Gender		
Male	172	54.43
Female	144	46.57
Marital Status		
Single	240	75.94
Married	62	19.62
Other	14	4.43
Education		
BS	182	57.59
MS	88	27.84
PhD	1	0.32
Other	45	14.24
Number of SM accounts		
Instagram	299	94.62
TikTok	292	92.40
Facebook	316	100
Snapchat	195	61.70
X/Twitter	158	50
Time Spent on SM (Hours) /day		
1-2 hours	94	29.74
2-3 hours	101	31.96
3-4 hours	101	31.96
4-5 hours	20	6.32
Age		
18-25	212	67.08
26-35	104	32.91

F denotes frequency and % denotes percentage.

Table 2: Correlation Study of Variables

Variables	M	SD	1	2	3	4	5
1 BSMAS	22.45	5.32	-				
2 RSES	25.60	4.75	-0.45**	-			
3 MWQ	18.35	3.85	0.34**	0.31*	-		
4 PSQI	7.20	2.10	-0.29*	0.25*	0.61	-	
5 PS	15.75	3.90	0.51**	-0.40**	0.37**	-0.30*	-

Note: **Correlation is significant at 0.001 level. *Correlation is significant at 0.05 level.

There is a negative link between self-esteem (RSES) and social media addiction (BSMAS), as indicated by the results, with a correlation coefficient of -0.45, with a p-value of less than 0.001. This indicates that a decrease in self-esteem occurs in tandem with an increase in addiction to social media. The association between mind-wandering (MWQ) and social media addiction (BSMAS) is positive, with a coefficient of 0.34** and a p-value of less than 0.001. This indicates that individuals who are addicted to social media have a difficult time concentrating their attention on a certain responsibilities. The PSQI, which measures the quality of sleep, exhibits a substantial negative link with addiction to social media, with a correlation coefficient of -0.29* and a p-value of less than 0.05. The practice of phubbing has a substantial positive link with addiction to social media, as indicated by the correlation coefficient (r=-0.51**, p<0.01). It suggests that the behavior of phubbing increases dramatically along with the level of addiction to social media platforms which is increasing. This is important to keep in mind: a positive association between mind-wandering and addiction to social media implies that there is a negative link between attentiveness and addiction to social media. Let's look back at our hypotheses:

H1: There is a significant negative correlation between social media addiction and self-esteem. According to our results, the correlation is moderate.
H2: There is a significant negative correlation between social media addiction and attention. According to our results, the negative correlation between these variables is moderate.
H3: There is a significant negative correlation between sleep quality and social media addiction. This correlation between these two variables is weak.
H4: There is a significant positive correlation between social media addiction and phubbing behavior.

The correlation between these two variables is strong.

Table 3: Alpha Reliabilities for Study Scales

Scale	Number of Items	Sample Size (N)	Alpha Reliability (α)
BSMAS	6	316	0.85
RSES	10	316	0.88
PS	10	316	0.82
MWQ	5	316	0.79
PSQI	8	316	0.83

Note: α values greater than 0.70 are deemed reliable.

5. Discussion

This research aims at investiagting the relationship between social media addiction and a number of other variables namely attention, self-esteem, sleep quality and phubbing behavior. There is a sufficient literature available suggesting that excessive and compulsive social media use is disrupting our daily lives and damaging our psychological well-being (Hawi & Samaha, 2016). We assumed at the outset that the social media addiction is negatively associated with self-esteem, attention, sleep quality and phubbing behavior. However, our results indicate exactly the same. This means that those who are addicted to their phones or social media for that matter, tend to ignore their real life interactions and associations. The greater the addiction, the greater the phubbing behavior (Davey, Davey, & Singh, 2018). The coefficient of correlation between addiction to social media and low self-esteem is r=-0.45, which indicates a relationship that is relatively strong for both variables. An increase in the usage of social media is associated with a decrease in the users' self-esteem, which is a conclusion that can be drawn. One possible explanation for this phenomenon is that younger individuals, in particular, are more likely to draw similarities between themselves and the superstars or influencers they encounter on social media. Those individuals who attempt to provide an almost flawless picture of their life on the internet are completely unaware of how fabricated their lives are. Moreover, Andreassen et al. published this information as well. According to the Rosenberg Self-Esteem Scale (RSES), those who have high scores on the Bergen Social Media Addiction Scale (BSMAS) are more likely to report having lower levels of happiness with themselves. According to Andreassen, Pallesen, and Griffiths (2017), this negative link can be due to a number of different causes, including social comparison and validation-seeking behaviors that are frequently displayed on social media platforms.

There has been an abundance of study conducted on the detrimental effects that spending an excessive amount of time in front of a screen may have on the quality of sleep. Quite surprisingly, the results of our study revealed a weakly significant negative association between addiction to social media and the quality of sleep the individual gets. Our research, on the other hand, reveals that there is a marginally significant positive link between addiction to social media and conduct that involves phubbing. People who are more addicted to social media have a tendency to disregard their companions in favor of using their smartphones or other electronic devices. However, they find scrolling through Facebook and X to be more exciting than having talks in real life, and as a consequence, their relationships in real life suffer as a result. A previous study that was carried out by Chotpitayasunondh and Douglas (2018) provides support for the findings that we have obtained. According to the findings of the study, compulsive use of social media can result in a neglect of social connections in real life, which in turn can lead to the encouragement of conduct known as phubbing (Chotpitayasunondh & Douglas, 2018) These findings highlight the larger social ramifications of addiction to social media, particularly in terms of the way it undermines the quality of direct human interactions. In addition, the study lends confirmation to the research that has already been conducted regarding the unfavorable association between addiction to social media and attention span. The findings of a study conducted by Chen and Yan (2016) indicate that the use of social media platforms has a detrimental effect on cognitive skills, particularly attention retention.

5.1. Limitations

The population for this research, although belonging from different ethnicities and cultural backgrounds, was mainly selected from Lahore and most of them were students. The sample size was aslo small. The questionnairs were also presented to the particpants at once. For future studies, a more strong inclusion and exclusion criteria could be used to recruit study particpants.

Since the participants mainly self-reported their usage, they might have underestimated or overestimated their usage. Social desirability bias might also compromise accuracy of responses since the participants might have tried to give responses which could be socially acceptable. For an in-depth analysis of the effects of social media addiction, a longitudinal study could prove to be effective. The questionnaires could be presented one at a time so that the participants do not feel burdenized or bored by them and answer mindfully instead of just filling them out.

References

Al-Saggaf, Y., & O'Donnell, S. B. (2019). Phubbing: Perceptions, reasons behind, and relationships with individual's online behavior. *Computers in Human Behavior, 86*, 174-181.

Andreassen, C. S., & Pallesen, S. (2014). Social network site addiction – An overview. *Current Pharmaceutical Design, 20*(25), 4053-4061.

Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addict Behav, 64*, 287-293. doi:10.1016/j.addbeh.2016.03.006

Buysse, D. J., Reynolds III, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry research, 28*(2), 193-213.

Cain, M. S., & Mitroff, S. R. (2017). Distractor filtering in media multitaskers: Deficits are not driven by failures to ignore. *Attention, Perception, & Psychophysics, 79*(5), 1535-1547. doi:10.3758/s13414-017-1337-9

Chen, Q., & Yan, Z. (2016). Does multitasking with mobile phones affect learning? A review. *Computers in Human Behavior, 54*, 34-42. doi:10.1016/j.chb.2015.07.047

Chotpitayasunondh, V., & Douglas, K. M. (2018). The effects of "phubbing" on social interaction. *Journal of applied social psychology, 48*(6), 304-316. doi:https://doi.org/10.1111/jasp.12506

Davey, S., Davey, A., & Singh, J. V. (2018). Relationship of personal-social media usage and mental health of college students. *Industrial Psychiatry Journal, 27*(1), 61-68.

Hawi, N. S., & Samaha, M. (2016). The Relations Among Social Media Addiction, Self-Esteem, and Life Satisfaction in University Students. *Social Science Computer Review, 35*(5), 576-586. doi:10.1177/0894439316660340

Huang, C. (2017). Time Spent on Social Network Sites and Psychological Well-Being: A Meta-Analysis. *Cyberpsychol Behav Soc Netw, 20*(6), 346-354. doi:10.1089/cyber.2016.0758

James, W. (1890). The principles of psychology, vol. 1. henry holt and co. *New York*. doi:https://doi.org/10.1103/RevModPhys.71.S358

Jensen, E. (2013). The new science of attention: Enhancing focus and engagement in the classroom. *Corwin Press*.

Junco, R. (2012). Too much face and not enough books: The relationship between multiple indices of Facebook use and academic performance. *Computers in Human Behavior, 28*(1), 187-198. doi:10.1016/j.chb.2011.08.026

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of social media. *Business Horizons, 53*(1), 59-66.

Karadağ, E., Tosuntaş, Ş. B., Erzen, E., Duru, P., Bostan, N., Şahin, B. M., & Babadağ, B. (2015). Determinants of phubbing which the dual latent states as addicted to smartphone and social media. *International Journal of Mechanical and Production Engineering Research and Development, 8*(5), 49-62.

Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., . . . Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults. *PLoS One, 8*(8), e69841. doi:10.1371/journal.pone.0069841

Levenson, J. C., Shensa, A., Sidani, J. E., Colditz, J. B., & Primack, B. A. (2016). The association between social media use and sleep disturbance among young adults. *Preventive Medicine, 85*, 36-41.

Lin, M. P., Chung, D., & Lin, C. C. (2021). Social media addiction and sleep problems in college students: The mediating roles of rumination and social anxiety. *Computers in Human Behavior, 114*, 106480-106487.

Mrazek, M. D., Franklin, M. S., Phillips, D. T., Baird, B., & Schooler, J. W. (2013). Mindfulness training improves working memory capacity and GRE performance while reducing mind wandering. *Psychological science, 24*(5), 776-781. doi:https://doi.org/10.1177/0956797612459659

Rosenberg, M. (1965). Society and the adolescent self-image. In: Princeton university press.

Scott, H., Biello, S. M., & Woods, H. C. (2019). Social media use and adolescent sleep patterns: cross-sectional findings from the UK millennium cohort study. *BMJ Open, 9*(9), e031161. doi:10.1136/bmjopen-2019-031161

Smith, A., & Anderson, M. (2018). *Social media use in 2018*. Retrieved from

Stapleton, P., Luiz, G., & Chatwin, H. (2017). Generation validation: The role of social comparison in use of Instagram among emerging adults. *Cyberpsychology, Behavior, and Social Networking, 20*(3), 142-149. doi:https://doi.org/10.1089/cyber.2016.0444

van der Schuur, W. A., Baumgartner, S. E., Sumter, S. R., & Valkenburg, P. M. (2015). The consequences of media multitasking for youth: A review. *Computers in Human Behavior, 53*, 204-215. doi:10.1016/j.chb.2015.06.035

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