International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Impact of Screen Time on Attention Control, Phubbing, and Social Isolation

Ms Shweta Mishra[1], Ms Aaisha Sipi[2], Ms Athira Menon[3]

[1]Assistant Professor (CHB), Psychology Department, R.D & S.H National College and S.W.A Science College
[2,3]Student, TYBA Psychology Department, R.D & S.H National College and S.W.A Science College

ABSTRACT
Screen time has become an important topic for research in the past few years as it has a significant impact on a person's mental health and overall development. There is a moderate positive correlation between screen time and attention span (Chakraborty & Nautiyal, 2023). Its influence on attention span is crucial for individuals to study so policymakers, educators, and psychologists can advocate for balanced screen time management for sustained attention (Chakraborty & Nautiyal, 2023). Studies have also found that excessive screen exposure can lead to attention deficit problems in children (Zimmerman & Christakis, 2007). Another Hadar and Eliraz (2015) study showed that more attention deficit-like behaviour was found in individuals who are high smartphone users. Excessive use of Instagram also showed a high positive correlation with a person's phubbing behaviour (Santos et al., 2023). This research paper explores the impact of screen time and the use of Instagram on phubbing behaviour, social isolation and attention control. The variables were measured using 1) the Phubbing Scale (PS-8): a measure developed by Roberts and David (2016), to assess the extent of the habit of snubbing someone in favour of a mobile phone; 2) the UCLA Social Isolation Scale: a measure developed by Russell (1996), to assess subjective feelings of loneliness and social isolation; 3) Attention Control Scale (ACS): measure developed by Derryberry and Reed (2002), to assess an individual's ability to control their attention and focus in various situations. Data from 100 individuals was collected and analysed using linear regression. Results are in progress and will be discussed in detail in the paper.

Keywords: Screen Time, Phubbing, Attention Span, Social Isolation, Social Media

INTRODUCTION

In recent years, the rise of digital devices and online platforms has led to a significant increase in screen time among individuals of all ages. A significant part of most people's lives is now spent on social media. While this technological advancement has brought about numerous benefits, it has also raised concerns about its potential impact on attention span and social isolation. Social media use has increased due to the pandemic amongst young people, which has resulted in increased emotional exhaustion, isolation, and screen fatigue (Pandya & Lodha, 2021).

Attention span is the length of time for which an individual can attend to one specific task (APA Dictionary of Psychology, 2018). This is also known as sustained attention and requires motivation and persistence. Prolonged exposure to screens has been associated with a decline in attention span and focus. A cross-sectional study of university students shows associations between screen time and self-perceived levels of

attention problems (Montagni et al., 2016). Attention span can be trained - one can learn to concentrate and focus by practising. However, social media has profound effects on attention span, since it allows individuals to easily pass over stimuli (Bulut, 2023).

Social isolation refers to the subjective feeling of being disconnected from others, despite the presence of social networks or relationships. It can manifest in various forms, including physical solitude, emotional withdrawal, and a lack of meaningful social engagement. Excessive reliance on screens for social interaction can paradoxically lead to feelings of isolation and loneliness. Increased social media usage is associated with increased real-life social isolation (Whaite et al., 2018) and higher levels of loneliness (Hunt et al., 2018). The rise in social isolation has also led to the rise of another phenomenon called phubbing.

"Phubbing," is a portmanteau of "phone" and "snubbing." It describes ignoring or neglecting someone in favour of one's smartphone or other digital devices (Verma et al., 2019). Phubbing behaviour due to screen usage depends on many factors including relation, content, purpose, timing, and communication (Aagaard et al., 2021). When individuals prioritise their devices over face-to-face interactions, they not only undermine the quality of their relationships but also showcase feelings of social isolation and alienation. A study conducted on Romanian adults showed positive associations between phubbing, loneliness, and psychological distress, and a significant negative association between loneliness and life satisfaction (Maftei & Măirean, 2023).

People who use social media for the motive of maintaining their relationships feel lonelier than those who spend the same amount of time on social media for other reasons (Bonsaksen et. al., 2023). People may use their phones because they allow them to avoid the distressing experience of being alone, or because they do not realise the mood benefits of social interaction (Leckfor et al., 2023). A Japanese study showed that no effects on loneliness were detected for those who use only Twitter or both Twitter and Instagram. Users of Facebook, Twitter and Instagram, on the other hand, were lonelier and had lower levels of well-being (Ye et al., 2021). A study conducted on Indian youth showed that phubbing behaviour also has significant consequences on a youth's social and relationship health, and self-flourishing, and is positively related to depression and distress (Davey et. al., 2018). It was also seen in another study that the use of social media in adolescents enhances symptoms of depression (Boers et al., 2019). A study showed that increased phubbing behaviour negatively affects relationship satisfaction and the perceived communication quality between two people (Chotpitayasunondh & Douglas, 2018).

Social media is the perfect example for the debate of boon or bane. It has undoubtedly revolutionised the world in ways beyond our imagination. As the world evolves with the innovations in the digital world, we cannot let that overshadow the negative effects it has had on humankind. Though the effects might feel miniscule at this point, in the long term the consequences can be significantly adverse. Issues such as decreasing attention span, social isolation and phubbing, show us the importance of understanding the digital realm in a finer way to prevent such consequences. We must navigate the world of social media in a way that helps us maximise its benefits and minimise its detrimental effects.

Method

Participants

This study recruited a total of 100 young adults between the ages of 18 and 25. The sample included both men and women. Data was collected through Google Forms. The participants were asked to report their average screen time (average number of hours of phone use every day) in the demographic section of the

form.

Assessment and Measures

Phubbing Behavior: The Phubbing Scale (PS-8) developed by Roberts and David (2016) was used to assess the frequency of participants snubbing someone in favour of their mobile phone. This scale consists of 8 items and utilizes a Likert scale format. Higher scores indicate a greater tendency to engage in phubbing behaviour.

Social Isolation: The UCLA Social Isolation Scale, developed by Russell in 1996, measured participants' subjective feelings of loneliness and social isolation. This scale likely uses a Likert scale format, with higher scores indicating greater feelings of isolation.

Attention Control: The Attention Control Scale (ACS), developed by Derryberry and Reed (2002), was used to assess participants' ability to control their focus and attention. This scale likely utilizes a Likert scale format, with higher scores indicating greater control over attention.

Data Analysis

Linear regression analysis was conducted using the PSPP software to examine how screen time and Instagram use predict phubbing behaviour, social isolation, and attention control.

Results

Table 1: Descriptive Statistics:

Scale	Mean	Std Dev	N
Social Isolation	62.46	9.46	100
Phubbing	22.24	4.92	100
Attention Control	49.88	9.01	100

The mean score for social isolation was 62.46 (SD = 9.46), indicating a moderate level of self-reported loneliness and social disconnectedness within the sample. Phubbing behaviour had a mean score of 22.24 (SD = 4.92), suggesting a somewhat frequent tendency to snub someone in favour of a mobile phone. Attention control scores had a mean of 49.88 (SD = 9.01), which reflects an average ability to control focus and attention in various situations among the participants.

Table 2: Regression Analysis Between Screen Time and Social Isolation:

Model Summary (Social Isolation)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.29	.09	.08	9.10

ANOVA (Social Isolation)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	765.52	1	765.52	9.25	.003
Residual	8111.72	98	82.77		
Total	8877.24	99			

Coefficients (Social Isolation)

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	70.81	2.34	.00	30.29	.000
Screen Time	-4.58	1.51	-.29	-3.04	.003

The model's R-value is 0.29, indicating a weak positive correlation between Screen Time and Social Isolation. R^2 is 0.09, meaning that approximately 9% of the variance in the outcome variable can be explained by Screen Time. The coefficient for Screen Time is -4.58, meaning that for every unit increase in screen time, Social Isolation decreases by approximately 4.58 units.

The t-value for Screen Time is -3.04, which is significant at the 0.05 level. The significance value is 0.003, indicating that the effect of Screen Time on Social Isolation is statistically significant. The findings suggest that there is a statistically significant negative relationship between screen time and the outcome variable. Specifically, as screen time increases, the outcome variable decreases. However, the effect size is relatively small, as indicated by the low R^2 value. Other factors not included in the model may also influence the outcome variable.

Table 3: Regression Analysis Between Screen Time and Phubbing:

Model Summary (Phubbing)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.38	.14	.13	4.58

ANOVA (Phubbing)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	341.62	1	341.62	16.26	.000
Residual	2058.62	98	21.01		
Total	2400.24	99			

Coefficients (Phubbing)

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	17.87	1.18	.00	15.17	.000
Screen Time	3.06	.76	.38	4.03	.000

The model's R-value is 0.38, indicating a moderate positive correlation between Screen Time and Phubbing. R^2 was found to be 0.14, meaning that approximately 14% of the variance in Phubbing can be explained by Screen Time. The ANOVA table indicates that the regression model is significant ($F(1, 98) = 16.26$, $p < .001$), meaning that the regression model as a whole explains a significant amount of variance in Phubbing. The coefficient of Screen Time is 3.06, meaning that for every unit increase in screen time, Phubbing increases by approximately 3.06 units.

The t-value for Screen Time is 4.03, which is significant at the 0.001 level. The significance value is 0.000, indicating that the effect of Screen Time on Phubbing is statistically significant. The findings suggest that there is a statistically significant positive relationship between screen time and the outcome variable, Phubbing. Specifically, as screen time increases, Phubbing also increases. The model accounts for a moderate amount of the variance in Phubbing.

Table 4: Regression Analysis Between Screen Time and Attention Control:

The model's R-value is 0.55, indicating a moderate correlation between Screen Time and Attention Control. R^2 (coefficient of determination) is 0.31, suggesting that approximately 31% of the variance in the outcome variable can be explained by the predictors. The ANOVA table indicates that the regression model is significant ($F(1, 98) = 43.29$, $p < .001$), implying that the regression model as a whole explains a significant amount of variance in the outcome variable. The coefficient for Screen Time is -8.21, indicating that for every unit increase in screen time, Attention Control decreases by approximately 8.21 units.

The t-value for Screen Time is -6.58, which is highly significant ($p < .001$). The significance (Sig.) value is 0.000, indicating that the effect of Screen Time on Attention Control is statistically significant. The findings suggest a statistically significant negative relationship between screen time and attention control. Specifically, as screen time increases, attention control tends to decrease. The model explains a moderate amount of the variance in attention control, with Screen Time being a significant predictor.

Model Summary (Attention Control)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.55	.31	.30	7.54

ANOVA (Attention Control)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2462.45	1	2462.45	43.29	.000
Residual	5574.11	98	56.88		
Total	8036.56	99			

Coefficients (Attention Control)

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	61.62	1.94	.00	31.80	.000
Screen Time	-8.21	1.25	-.55	-6.58	.000

Discussion

The results show that increased screen time and use of social media predict a negative impact on attention control and increased phubbing behaviour in young adults. The findings of the research can be understood in light of past research.

Results from a year-long study on the effect of screen time on ADHD symptoms showed that increased screen time within a year was associated with a heightening of ADHD symptoms within that same year (Wallace et al., 2023). These findings are not just limited to the ages of 18 to 25. In children and adolescents, it was seen that increased screen time negatively impacts attention, memory language and motor skills development. In addition, it also predicts an increased risk for obesity and sleep problems along with social and emotional problems (Goswami & Parekh, 2023).

Screen time is a complex variable to measure since it depends heavily on the context of use: some actions that were previously accomplished without a screen and required actual physical and social interaction now depend heavily on the presence of one, and this kind of technological shift must be considered (Van Deursen & Van Dijk, 2014).

Phubbing behaviour can reduce the quality of social interactions between people in society. Individuals who show this behaviour are considered to be disrespectful to those around them since it indicates that

they wish to avoid communication with them or are not interested (Ansari et al., 2016). The use of the internet and social media has forced people to live a fast-paced life, and the abrupt changes can cause people to be in constant expectation about the future, which can in turn cause them to experience insecurity and restlessness (Capilla Garrido et. al., 2021).

An unexpected finding of the study was the weak positive correlation between the variables of screen time and social isolation. This is unanticipated since previous studies show that there is a negative impact of screen time on social isolation. The results of a 2019 study show that social interaction in the physical space declined as media usage increased, but at the individual level, in-person social interaction and social media use are positively correlated (Twenge et al., 2019). Social media acts as a platform that allows opportunities for communication, connection and belongingness, especially for those who may feel daunted by face-to-face interactions. People with social anxiety are usually more introverted. Studies have shown that these individuals have indicated that their interactions on social media platforms like TikTok are overall positive, and to some extent, meaningful (Rayo, 2021). Here, social media acts as a tool that helps them fulfil their need for affiliation. Additionally, the use of a screen during the pandemic helped many across the globe to interact with each other and bridge the gap caused due to restrictions. However, the observed association between screen time and social isolation is weak, which suggests that screen time likely plays a minor role in social isolation compared to other factors.

Implications and Limitations

This study has limitations. The cross-sectional design precludes establishing causality between screen time and the outcomes. Longitudinal studies are needed to understand the direction of these relationships. Additionally, self-reported measures are susceptible to bias. Future research could employ objective screen time tracking methods and utilise behavioural tasks to assess attention control more directly. Furthermore, exploring potential moderators like personality traits, social media use patterns, and screen content could provide a more nuanced understanding of the complex associations observed in this study. Future research can expand on the results of this study by taking into account these factors and further our understanding of the connection between screen time and its cognitive consequences. This study focused on a specific demography, thus the findings of this study cannot be fully generalizable. There is a high possibility of a two-way nature of the relationship between the variables. People with attention deficit problems and social isolation may be more susceptible to social media use. This study provides great insight into the complex relations between the variables, it is important to acknowledge its limitations and the need for further research.

This research has various implications. First and foremost, it highlights the importance of spreading awareness about the excessive use of social media, especially among adolescents and young adults. We need to advocate the moderation of screen time, to help tackle the cognitive consequences like attention deficits. This study also shows the benefit of increasing screen time, that is decreasing social isolation among individuals. Social media helps us stay connected with everyone. The virtual connection with people has increased, especially since the COVID-19 pandemic. The isolation during the pandemic made us satisfied with being connected with people through online means, hence even post-pandemic virtual connection is sufficient for people and they don’t feel isolated or lonely. Overall this study highlights the importance of mindful digital use.

Conclusion

This study found that screen time has complex relationships with social interaction and focus in young adults. While increased screen time was associated with slightly lower social isolation, it also predicted greater phubbing behaviour and decreased attention control. These findings suggest that screen time may have both positive and negative consequences, indicating further research into the relationships underlying these findings.

REFERENCES

1. Aagaard, J., Steninge, E., & Zhang, Y. (2021). On the hermeneutics of screen time. AI & SOCIETY, 38(6), 2329–2337. https://doi.org/10.1007/s00146-021-01223-y
2. Ansari, M., Alas, Y., Hardaker, G., Jaidin, J. H., Smith, M. B., & Ahad, A. D. (2016). Smartphone habit and behaviour in Brunei: Personalization, gender, and generation gap. Computers in Human Behavior, 64, 719–727. https://doi.org/10.1016/j.chb.2016.07.063
3. Bonsaksen, T., Ruffolo, M., Price, D., Leung, J., Thygesen, H., Lamph, G., Kabelenga, I., & Geirdal, A. Ø. (2023). Associations between social media use and loneliness in a cross-national population: do motives for social media use matter?. Health psychology and behavioral medicine, 11(1), 2158089. https://doi.org/10.1080/21642850.2022.2158089
4. Bulut, D. (2023). The Association between Attention Impairments and the Internet and Social Media Usage among Adolescents and Young Adults with Potential Consequences: A Review of Literature. Psychology, 14(08), 1310–1321. https://doi.org/10.4236/psych.2023.148073
5. Capilla Garrido, E., Issa, T., Gutiérrez Esteban, P., & Cubo Delgado, S. (2021). A descriptive literature review of phubbing behaviors. Heliyon, 7(5), e07037. https://doi.org/10.1016/j.heliyon.2021.e07037
6. Chotpitayasunondh, V., & Douglas, K. M. (2018). The effects of "phubbing" on social interaction. Journal of Applied Social Psychology, 48(6), 304–316. https://doi.org/10.1111/jasp.12506
7. Davey, S., Davey, A., Raghav, S. K., Singh, J. V., Singh, N., Blachnio, A., & Przepiórkaa, A. (2018). Predictors and consequences of "Phubbing" among adolescents and youth in India: An impact evaluation study. Journal of family & community medicine, 25(1), 35–42. https://doi.org/10.4103/jfcm.JFCM_71_17
8. Derryberry, D., & Reed, M. A. (2002). Anxiety-related attentional biases and their regulation by attentional control. Journal of Abnormal Psychology, 111(2), 225-236.
9. García-Castro, F. J., Abreu, A. M., Rando, B., & Blanca, M. J. (2022). The Phubbing Scale (PS-8) in the Portuguese population: psychometric properties. Psicologia, reflexao e critica : revista semestral do Departamento de Psicologia da UFRGS, 35(1), 7. https://doi.org/10.1186/s41155-022-00209-z
10. Goswami, P., & Parekh, V. (2023). The impact of screen time on child and adolescent development: a review. International Journal of Contemporary Pediatrics, 10(7), 1161–1165. https://doi.org/10.18203/2349-3291.ijcp20231865
11. Leckfor, C. M., Wood, N. R., Kwiatek, S. M., & Orehek, E. (2023). Expectations and experiences of screen time, social interaction, and solitude. The Journal of Social Psychology, 1–16. https://doi.org/10.1080/00224545.2023.2231617
12. Maftei, A., Măirean, C. Put your phone down! Perceived phubbing, life satisfaction, and psychological distress: the mediating role of loneliness. BMC Psychol 11, 332 (2023). https://doi.org/10.1186/s40359-023-01359-0

13. Montagni, Ilaria & Guichard, Elie & Kurth, Tobias. (2016). Association of screen time with self-perceived attention problems and hyperactivity levels in French students: A Cross-sectional study. BMJ open. 6. e009089. 10.1136/bmjopen-2015-009089.
14. Pandya, A., & Lodha, P. (2021). Social connectedness, excessive screen time during COVID-19 and Mental Health: A review of Current evidence. Frontiers in Human Dynamics, 3. https://doi.org/10.3389/fhumd.2021.684137
15. Rayo, Nathaly, "The Usage of Social Media to Fulfill Social Needs in Introverts" (2021). Honors Undergraduate Theses. 1077. https://stars.library.ucf.edu/honorstheses/1077
16. Russell, D , Peplau, L. A.. & Ferguson, M. L. (1978). Developing a measure of loneliness. Journal of Personality Assessment, 42, 290-294.
17. Santos, A. M. R. D., De Oliveira Ferreira, B., Leitão, C. L., Da Silva, I. R., & De Souza Torres, M. (2023). Phubbing behavior, personality, and use of instagram by Brazilian adults: a correlational and predictive study. Psicologia: Reflexão E Crítica, 36(1). https://doi.org/10.1186/s41155-023-00268-w
18. Sewall, C., Goldstein, T. R., Wright, A. G., & Rosen, D. (2022). Does objectively measured Social-Media or smartphone use predict depression, anxiety, or social isolation among young adults? *Clinical Psychological Science*, *10*(5), 997–1014. https://doi.org/10.1177/21677026221078309
19. Twenge, J. M., Spitzberg, B. H., & Campbell, W. K. (2019). Less in-person social interaction with peers among U.S. adolescents in the 21st century and links to loneliness. *Journal of Social and Personal Relationships*, *36*(6), 1892–1913. https://doi.org/10.1177/0265407519836170
20. Van Dijk, J., & Van Deursen, A. J. a. M. (2014). Digital skills. In Palgrave Macmillan US eBooks. https://doi.org/10.1057/9781137437037
21. Verma, S., Kumar, R., & Yadav, S. K. (2019). The Determinants of Phubbing Behaviour: a Millenials Perspective. In International Journal of Innovative Technology and Exploring Engineering (IJITEE) (Vol. 8, Issue 12S, pp. 806–807). Blue Eyes Intelligence Engineering & Sciences Publication. https://doi.org/10.35940/ijitee.L1184.10812S19
22. Wallace, J., Boers, E., Ouellet, J., Afzali, M. H., & Conrod, P. J. (2023). Screen time, impulsivity, neuropsychological functions and their relationship to growth in adolescent attention-deficit/hyperactivity disorder symptoms. Scientific Reports, 13(1). https://doi.org/10.1038/s41598-023-44105-7
23. Whaite, E. O., Shensa, A., Sidani, J. E., Colditz, J. B., & Primack, B. A. (2018). Social media use, personality characteristics, and social isolation among young adults in the United States. Personality and Individual Differences, 124, 45–50. https://doi.org/10.1016/j.paid.2017.10.030
24. Ye, S., Ho, K., & Zerbe, A. (2021). The effects of social media usage on loneliness and well-being: analysing friendship connections of Facebook, Twitter and Instagram. Information Discovery and Delivery, 49(2), 136–150. https://doi.org/10.1108/idd-08-2020-0091
25. Zimmerman, F. J., & Christakis, D. A. (2007). Associations between content types of early media exposure and subsequent attentional problems. *Pediatrics*, *120*(5), 986–992. https://doi.org/10.1542/peds.2006-3322