

## Mindfulness as a Buffer: Mediating the Effects of Zoom Fatigue on Productivity and Well-being

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The advent of the COVID-19 pandemic triggered an unprecedented transformation in various aspects of life, including education, as traditional classroom settings gave way to virtual learning environments facilitated by platforms like Zoom and Google Meet. This transition brought about new challenges and opportunities, with individuals adapting to remote work, education, and social interactions. Amidst this shift, concerns arose regarding the impact of prolonged use of video conferencing tools on individuals' well-being and productivity. Recognizing the importance of understanding these dynamics, this study aims to investigate the direct relationship between Zoom fatigue and perceived productivity and well-being among school students. Additionally, it seeks to explore the role of mindfulness in mediating the effects of Zoom fatigue on these variables. By shedding light on these interconnections, this research aims to inform strategies aimed at enhancing engagement and motivation in online learning environments while addressing the challenges posed by digital fatigue.

**Keywords:** Zoom fatigue, wellbeing, Perceived productivity, mindfulness

The COVID-19 pandemic led to a dramatic shift in how individuals engage in work and communication, with video conferencing platforms like Zoom becoming integral to daily life. Video conferencing became essential during COVID-19 and continues to be important today. It has transformed how we work, learn, and connect by offering flexibility and reducing the need for physical presence. This shift has made remote collaboration and communication more accessible and efficient in many sectors. COVID-19 was not only a health crisis but it has shown its potential to bring social, psychological, and economic crises across the globe. Virtual meetings have served as an important medium in education (Lowenthal, Borup, West, & Archambault, 2020), healthcare (Feijt et al., 2020), and business with individuals sheltering at home and attempting to

undertake everyday activities remotely (Nguyen et al., 2021).

With the pandemic's outbreak, there was an abrupt transition in education from classroom learning to online learning via video conferencing platforms like Zoom and Google Meet. For instance, around 290% Zoom meeting participants have been expanded and approx. three million users of Google Meet per day was reported (Iqbal, 2020). Since, online learning provided a secure environment for students to avoid academic failure, it has proven to be a boon, exclusively in time of social distancing and lockdowns around the world (Riedl, 2022). However, the gigantic use of video conferencing in education has raised various concerns about its impact on physical and mental health among students, teachers and school executives as well (de Sobral et al.,

2022). A specific phenomenon that has emerged in this context is videoconference fatigue, which refers to the degree to which people feel exhausted, tired, or worn out attributed to engaging in a videoconference (Bennett et al., 2021) (Bennett et al., 2021). Recent studies indicate that videoconferences are more tiring than face-to-face meetings due to the greater need for prolonged attention (Spataro, 2020). These findings on videoconference fatigue differ from research suggesting that people generally favor remote meetings (PwC, 2020). Videoconference Zoom fatigue is often accompanied by symptoms such as exhaustion, apprehension, anxiety, burnout, distress, as well as physical symptoms like headaches, back pain etc. (Reidl, 2022). However, the concept of 'Zoom Fatigue', which is used for general evaluations of video conferencing, emerged because many people started to use the word Zoom instead of video conferencing, and the Zoom brand name was characterized as a label for video conferencing programs (Bailenson, 2021). The concept does not only include the Zoom application but also gathers all video conferencing programs under a single umbrella. It is suggested that video conferencing programs may negatively affect cognitive performance and reduce mobility and that exposure of all participants to each other's gaze may cause anxiety. (Fauvill, et al., 2021). It is considered to be more psychologically challenging than face-to-face communication as its users feel the need to concentrate more. Because it is stated that the ability of individuals to interpret body language and clues decreases, they have difficulty in perceiving humor and irony, and in relaxing in a natural conversation environment. Moreover, scheduling back-to-back meetings without breaks negatively affects well-being, while dissatisfaction with close-up appearances impacts self-esteem. Technical issues like screen freezing, poor

internet, and bandwidth problems contribute to Zoom fatigue, increasing stress, particularly during live sessions (Bailenson, 2021).

In addition, the fact that users feel mistrust about the control of data and records might be another cause of fatigue and exhaustion (Amponsah, Wyk & Kolugu, 2022).

Online education via Zoom demands more focus and places greater psychological strain compared to in-person interactions (de Sobral et al., 2022; Williams, 2021). Bailenson (2021) outlines four key factors contributing to Zoom fatigue: heightened cognitive effort, close-up screen views, continuous self-monitoring from viewing one's own video, and limited physical movement. Additionally, mirror anxiety, or the increased self-awareness from seeing oneself on screen, exacerbates this fatigue (Riedl, 2022). This persistent self-focus can trigger negative emotions such as anxiety and depression (Luo et al., 2021).

Videoconferencing is more tiring than in-person meetings due to the increased attention span required (Spataro, 2020). Zoom-related burnout is positively correlated with stress, anxiety, and depression, and negatively related to life satisfaction and academic well-being (Deniz et al., 2022). The inability to mentally disconnect from work can lead to reduced productivity, low motivation, high stress, and poor mental health (Giurge & Bohns, 2020). Recent studies have confirmed these findings, emphasizing the need for strategies to manage virtual fatigue and improve digital communication (Lee, 2023).

This fatigue has potential implications for both perceived productivity and well-being, two critical factors in both professional performance and personal health. Understanding the relationship between

Zoom fatigue and perceived productivity is essential, as productivity is a cornerstone of work performance and professional satisfaction. If Zoom fatigue negatively impacts one's ability to focus, engage, and contribute effectively, organizations may face challenges in maintaining performance standards in remote work environments. Moreover, from an individual's perspective, a decline in perceived productivity can lead to frustration, dissatisfaction, and decreased motivation (Williams, 2021).

Similarly, well-being is a multifaceted construct that encompasses emotional, psychological, and physical health. The demands of constant video conferencing—such as sustained attention, limited non-verbal cues, and the blurring of work-life boundaries—can adversely affect mental health and overall well-being. Prolonged experiences of fatigue can contribute to stress, burnout, and reduced quality of life, making it essential to understand how Zoom fatigue specifically influences well-being in both short- and long-term contexts.

Investigating these outcome variables may provide valuable insights into the broader impacts of the digital work environment on individuals' mental health and performance. The findings may inform strategies to mitigate the negative effects of Zoom fatigue, promoting healthier and more productive virtual communication practices.

For the present study, we examined perceived productivity and well-being as outcome variables in relation to Zoom fatigue. Prolonged virtual meetings demand sustained attention and cognitive engagement, which can lead to mental exhaustion, reduced efficiency, and impaired well-being. In light of these concerns, understanding the effects of video conferencing on perceived productivity and well-being is crucial, as these variables are

directly linked to both individual performance and overall quality of life.

This study draws upon Kaplan's Attention Restoration Theory (ART) (1995), which suggests that environments requiring intense, sustained attention deplete cognitive resources over time, leading to mental fatigue. Video conferencing, which often requires constant visual focus and reduced natural breaks, aligns with such attention-draining environments. In contrast, ART posits that restorative experiences, such as time in nature, can help individuals recover from mental fatigue. Similarly, incorporating practices like mindfulness during or between virtual meetings may offer a way to replenish depleted attention and mitigate the negative effects of Zoom fatigue.

By examining how extended virtual meetings influence both perceived productivity and well-being, this study aims to provide insights that can be applied in educational and organizational contexts, where managing Zoom fatigue is crucial for maintaining both performance and mental health. Furthermore, exploring mindfulness as a coping strategy highlights practical interventions to reduce work-related fatigue, enhance focus, and improve overall virtual meeting experiences.

In the present study, mindfulness was considered as mediator variable, while zoom fatigue is a predictor variable, and perceived productivity and wellbeing as outcome variables.

### **Mindfulness and zoom fatigue:**

Mindfulness is a key mediator between Zoom fatigue, productivity, and well-being because it directly addresses the cognitive and emotional challenges posed by prolonged video conferencing. Humans naturally tend to focus on perceived threats or internal distractions, which depletes

cognitive resources. This phenomenon is especially prevalent during video calls, where sustained attention, limited physical movement, and constant interaction can lead to mental exhaustion. Mindfulness, on the other hand, helps individuals focus on the present moment, allowing them to manage stress and improve concentration (Albrecht et al., 2012; Black et al., 2009).

Mindfulness involves practices like meditation or yoga, which encourage intentional awareness of one's mental state and surroundings. These practices promote relaxation and mental clarity (Gard et al., 2014; Kabat-Zinn, 2003). By helping individuals refocus their attention, mindfulness reduces the stress and cognitive strain associated with Zoom fatigue, thus leading to enhanced productivity and overall well-being.

Research supports the idea that mindfulness can reduce stress and burnout (Lacaille et al., 2018). For example, Rees et al. (2020) found that a four-hour mindfulness seminar significantly reduced stress and burnout in rural doctors who were highly prone to these issues. Additionally, mindfulness has been shown to improve executive function, concentration, metacognition, emotional regulation, self-efficacy, relaxation, and even sleep quality (Albrecht, 2014; Carelse, 2013; Coholic, 2011). These factors are critical in managing the challenges associated with Zoom fatigue, such as stress, burnout, and attention difficulties (Kishida et al., 2019; Rees et al., 2020).

Mindfulness targets the root causes of Zoom fatigue—stress and cognitive overload—by enhancing focus and reducing mental strain. It promotes emotional regulation, resilience, and overall well-being, factors that are crucial in managing the demands of video conferencing. Moreover, mindfulness helps individuals improve their

productivity by enhancing concentration, reducing burnout, and supporting a healthy work-life balance. Given these benefits, mindfulness can mediate the relationship between Zoom fatigue and both perceived productivity and well-being.

Thus, the following hypotheses are proposed:

- H<sub>1</sub>: Zoom fatigue will predict perceived productivity.
- H<sub>2</sub>: Zoom fatigue will predict well-being.
- H<sub>3</sub>: Mindfulness will mediate the relationship between Zoom fatigue and perceived productivity.
- H<sub>4</sub>: Mindfulness will mediate the relationship between Zoom fatigue and well-being.

## Method

### Participants

A cross-sectional online survey was conducted with 680 students from 8th to 12th grade. A convenience sampling technique was used to collect data through Google Forms, which were distributed on social media platforms such as WhatsApp, Instagram, and Facebook. Participants were encouraged to share the survey with their friends and family members to broaden the sample. The mean age of the adolescents was 14 years (SD = 1). In terms of sociodemographic variables, the sample consisted of 51% males and 49% females, all studying in Grades 8 to 12.

### Measures

*Zoom Exhaustion & Fatigue Scale (ZEF Scale)*: Fauville, Luo, Queiroz, Bailenson & Hancock developed the Zoom Exhaustion and Fatigue Scale (ZEFS). It consists of 15 items, with a five-point Likert-type scale response (1=not at all, 5=extremely). Some items included: "How tired do you feel after video conferencing?", "How much do your

eyes hurt after video conferencing?”, among others. The ZEFS describes several types of fatigue, including general ( $\alpha=0.93$ ), visual ( $\alpha=0.91$ ), social ( $\alpha=0.89$ ), motivational ( $\alpha=0.89$ ), emotional ( $\alpha=0.80$ ). Cronbach alpha for the overall scale is  $\alpha=0.94$  (see Table 1).

**Perceived Productivity:** Perceived productivity scale was used constructed by Kushlev & Dunn (2014). It consists of 3 items ranging on a 7 point scale (for eg. “Overall today, did you feel you got done the things at work that were most important to you?”). Items 1 and 2 were created as face-valid measures of people’s sense of accomplishment at work. Item 3 was adapted from the basic need satisfaction at work scale.

**WHO-5 Wellbeing Index-** The WHO – 5 Wellbeing Index is a concise self- reported measure of current mental wellbeing. The WHO- 5 consists of five statements, rated by respondents based on how they have felt over the past two weeks. Items (e.g. “I have felt cheerful and in good spirits.”) are scored on a six-point scale ranging from 0 (at no

time) to 5 (All of the time) and a higher score indicates greater level of wellbeing.

**The Mindful Attention Awareness Scale (MAAS)-** Mindfulness was measured through The Mindful Attention Awareness Scale (MAAS). This is a 5-item scale is constructed by Brown & Ryan (2003) and is designed to measure the short-term or current manifestation of a core characteristic of mindfulness, namely a receptive state of mind in which attention, informed by a sensitive awareness of what is happening in the present, simply observing what is taking place. The items included- “I was doing something automatically, without being aware of what I was doing.” It is a seven-point scale ranging from Not at all to Very much.

### Statistical analysis

Descriptive analysis was done using SPSS version 21. The direct effect of zoom fatigue on perceived productivity and wellbeing was assessed through Hayes model. Moreover, the mediating effect of mindfulness between zoom fatigue and perceived productivity and between zoom fatigue and wellbeing was also examined through Hayes method.

## Results

Table 1. Showing correlation, mean and SD of all the variables used in the study

Variables	Mean	SD	1	2	3	4
1. Zoom fatigue	2.58	0.81	1			
2. Perceived productivity	13.46	3.55	-0.151**	1		
3. Wellbeing	16.14	4.65	-0.419**	0.376**	1	
4. Mindfulness	2.53	1.24	0.616**	-0.237**	-0.484**	1

\*\*p < 0.01, \*p < 0.05, N = 683

The results (Table 1) showed that there is a significant negative correlation between zoom fatigue and wellbeing ( $r=-0.419$ ,  $p< 0.01$ ) and zoom fatigue and Perceived productivity ( $r=-0.151$ ,  $p< 0.01$ ). However,

there is a significant positive correlation between zoom fatigue and mindfulness ( $r = 0.616$ ,  $p< 0.01$ ).

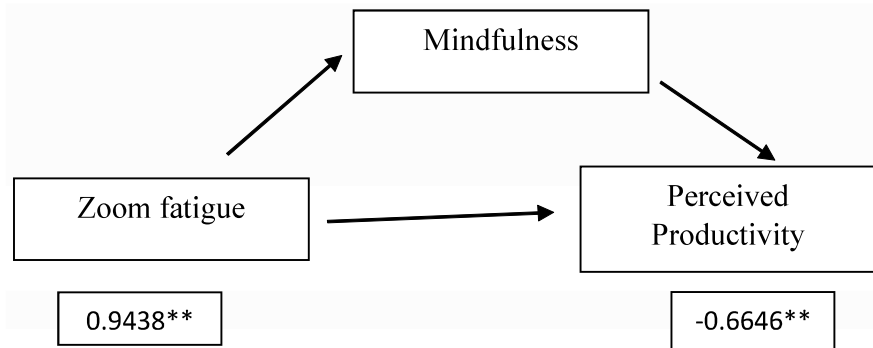


Figure 1: Showing the results of zoom fatigue and perceived productivity via mindfulness

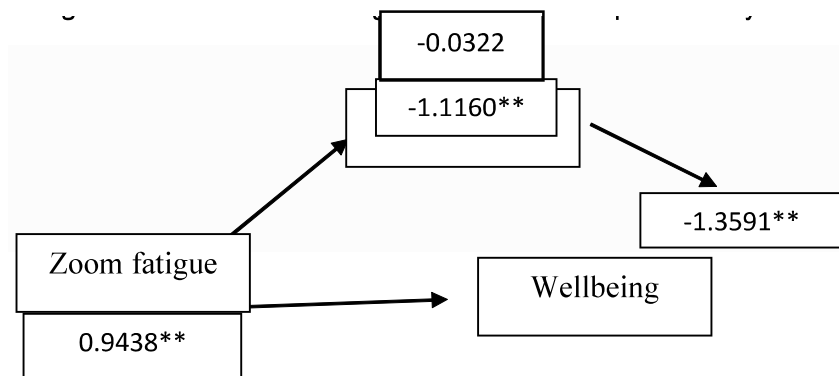


Figure 2 Showing the results of zoom fatigue and Wellbeing via mindfulness

Table 2: Showing mediation analysis summary

Relationship	Regression Coefficients(b)	Confidence Interval		P value
		Lower Bound	Upper Bound	
zoom fatigue → perceived productivity	-0.0322	-0.4386	0.3743	0.8766
zoom fatigue → mindfulness → perceived productivity	-0.6646**	-0.9300	-0.3992	0.001
zoom fatigue → wellbeing	-2.3987**	-2.7987	-2.0076	<0.005
zoom fatigue → mindfulness → wellbeing	-1.2827**	-1.6253	-0.9439	<0.005

Mediation analysis was used to test whether the relation between zoom fatigue and perceived productivity was mediated by mindfulness. The direct effect of zoom fatigue on perceived productivity was not significant (coefficient  $b = -0.0322$ , 95% CI =  $-0.4386 - 0.3743$ ), hence rejecting H1.

Meanwhile, the coefficient estimates based on the use of 95% CI as evidence of the mediation of indirect effect of mindfulness - indirect effect coefficient  $b$  (zoom fatigue → mindfulness → perceived productivity) =  $-0.6646$ , CI =  $-0.9300 - -0.3992$  was found to be significant. The total indirect effect of zoom fatigue on perceived productivity

accounted for in the overall model was 23.72%. Hence, mindfulness successfully mediated the relationship between zoom fatigue and perceived productivity, supporting H3.

Mediation analysis was also used to test whether the association between zoom fatigue and well-being was mediated by mindfulness. The direct effect of zoom fatigue on well-being was significant (coefficient  $\beta = -2.3987$ , 95% CI = -2.7987– -2.0076), hence supporting H2.

Meanwhile, the coefficient estimates—based on the use of 95% CI as evidence of the mediation of indirect effect of mindfulness - indirect effect coefficient  $\beta$  (zoom fatigue  $\rightarrow$  wellbeing) = -1.2827, CI = -1.6253 – -0.9439 was also found to be significant. The total indirect effect of zoom fatigue on well-being accounted for in the overall model was 25.77%. Hence, mindfulness successfully mediated the relationship between zoom fatigue and wellbeing, supporting H4.

### Discussion

The present study aimed to examine the direct relationship between Zoom fatigue and perceived productivity and well-being among school students, while also exploring the indirect associations between these variables through mindfulness. The findings revealed that Zoom fatigue had no direct effect on perceived productivity, but mindfulness acted as a mediator in this relationship. This suggests that while Zoom fatigue does not directly lower students' perceived productivity, mindfulness plays a critical role in enhancing their productivity by helping them manage their attention and multitasking.

Mindfulness has been shown to improve attention, which can enhance perceived productivity, even in stressful environments such as virtual classrooms (Lee, 2020). Students who practice mindfulness are more

likely to focus and accomplish tasks without distraction, reducing the cognitive load imposed by multiple stimuli in the online space. As Healy (1990) argues, "Habits of the mind quickly become the structure of the brain," suggesting that mindfulness practices, when integrated into classroom culture, can improve focus and, subsequently, productivity. Educators can play a vital role in fostering such habits, helping students to develop self-awareness, purposeful focus, and academic success.

Zoom fatigue can drain energy as students attempt to focus on various virtual tasks, often exacerbated by technical issues like screen freezes, data control problems, and connectivity challenges (Jiang, 2020; Lawson, 2010). These issues indirectly affect productivity by increasing stress and cognitive overload, further emphasizing the importance of mindfulness in mitigating these effects.

On the other hand, the study found a significant direct inverse relationship between Zoom fatigue and well-being. Consistent with the findings of (Engin Deniz et al., 2022), students experienced stress during prolonged virtual meetings, contributing to increased cognitive load and mental exhaustion. The strain of staying engaged, combined with technical glitches and the pressure of managing multiple tasks in a virtual space, was found to negatively impact students' mental well-being (Engin Deniz et al., 2022); Montag et al., 2022).

Mindfulness was also found to mediate the relationship between Zoom fatigue and well-being. Research suggests that mindfulness practice reduces stress, burnout, and other negative effects associated with prolonged stress, thereby improving well-being (Rees et al., 2020). Mindfulness training programs, such as meditation and relaxation techniques, have proven effective in reducing perceived stress and improving well-being,

especially in populations prone to burnout (Chiesa & Serretti, 2009; Khoury et al., 2015). By helping individuals focus on the present moment and manage stress, mindfulness can alleviate the detrimental impact of Zoom fatigue on mental well-being.

The present study's findings support the hypothesized model, suggesting that mindfulness may serve as a successful intervention strategy for Zoom fatigue. Improved mindfulness predicts lower levels of stress, burnout, and multitasking, leading to better social presence and reduced Zoom fatigue. As virtual meetings and video-conferencing will likely remain a part of our daily lives (Molla, 2020), exploring ways to mitigate Zoom fatigue is essential for those who frequently use such platforms. Mindfulness has been identified as a potential intervention strategy that could reduce Zoom fatigue and improve satisfaction with online experiences.

In conclusion, effective innovation strategies in instructional design and the use of technology tools to improve student engagement and motivation in online learning environments (Sanchez et al., 2022) will be critical in managing the adverse effects of Zoom fatigue. By integrating mindfulness practices, both educators and students can enhance productivity and well-being in virtual learning and workspaces.

#### **Limitations and future lines of research**

Although present research findings are valuable still it's not free from some limitations. First, the data were collected using an online platform which limits participation itself. Those who did not participate may have different perspectives from the study participants. Self-report bias in the use of questionnaires is also a limitation of this paper. Despite the limitations, our research expands the literature on virtual meeting

fatigue in the field of education. Future researchers may conduct similar kind of research and address the limitations presented in this study. As this study relied entirely on survey data, it lacks both the manipulation of mindfulness and the temporal component that would allow us to determine directionality of the predictive relationships. Future action research studies might involve how choices of meditation practices affect productivity and wellbeing. Future studies may validate the present findings, involving larger samples, improving some self-report measures, and employing experimental designs etc. However, present research extends the literature and adds to the body of knowledge on Zoom fatigue.

#### **Conclusion**

Thus, online learning and video conferencing can have a negative impact on students' wellbeing. This research highlights that it is possible to start taking steps to promote a more positive and meaningful learning experience for students. From this point of view, the results from this study are particularly relevant and new if we consider the historical period in which they were collected. During pandemic the internet has been abused in every aspect of life (e.g., education, work, personal relationships). At that time, we were living in a sort of technological/social paradox: face to face social contact was not possible due to restrictions and the risk of Covid-19 transmission. Mindfulness programs should be spread and promoted in a variety of settings, especially in the school and workplace, as it could be helpful in several aspects of psychophysical well-being. Even though the pandemic is over, driven by the need for remote working and learning, videoconferencing is now an integral part of everyday life, helping users navigate the challenges of social distancing, remote work, and online learning. Through careful and

planned course design and implementation, educators can use videoconferences to better engage students in their online courses, yet it is imperative that colleges and universities must support these efforts through with the right infrastructure and training. While videoconferencing can effectively be implemented within college courses, the effort requires considerable training, time, and design by faculty to ensure that students are engaged with the resources and do not view the sessions as tiring and loose interest in academics.

### References

- Albrecht, N. J. (2014). Wellness: A Conceptual Framework for School-Based Mindfulness Programs. *The International Journal of Health, Wellness, and Society*, 4, 21-36.
- Albrecht, Nicole & Albrecht, Patricia & Cohen, Marc. (2012). Mindfully Teaching in the Classroom: a Literature Review. *Australian Journal of Teacher Education*. 37. 10.14221/ajte.2012v37n12.2.
- Amponsah, Samuel, van Wyk, Micheal M. and Kolugu, Michael Kojo, (2022), Academic Experiences of “Zoom-Fatigue” as a Virtual Streaming Phenomenon During the COVID-19 Pandemic, *International Journal of Web-Based Learning and Teaching Technologies (IJWLTT)*, 17( 6), p. 1-16.
- Bailenson, J. N. (2021). Nonverbal overload: A theoretical argument for the causes of Zoom fatigue. *Technology, Mind, and Behavior*, 2(1). <https://doi.org/10.1037/tmb0000030>
- Bennett, A. A., Champion, E. D., Keeler, K. R., & Keener, S. K. (2021). Videoconference Fatigue? Exploring Changes in Fatigue After Videoconference Meetings During COVID-19. *Journal of Applied Psychology*, 106(3), 330–344. <https://doi.org/10.1037/apl0000906>
- Black, D. S., Milam, J., & Sussman, S. (2009). Sitting-meditation interventions among youth: a review of treatment efficacy. *Pediatrics*, 124(3), e532–e541. <https://doi.org/10.1542/peds.2008-3434>
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822–848. <https://doi.org/10.1037/0022-3514.84.4.822>
- Carelse, K. (2013). Employee perceptions towards workplace diversity in a financial institution operating in the Western Cape. Faculty of Economics and Management Sciences, University Of Western Cape, Cape Town.
- Chiesa A, & Serretti A.(2009) Mindfulness-based stress reduction for stress management in healthy people: A review and meta-analysis. *J. Altern. Complement. Med.* 15: 593–600. doi: 10.1089/acm.2008.0495.
- Coholic, D. A. (2011). Exploring the feasibility and benefits of arts-based mindfulness-based practices with young people in need: Aiming to improve aspects of self-awareness and resilience. *Child & Youth Care Forum*, 40(4), 303–317. <https://doi.org/10.1007/s10566-010-9139-x>
- De Sobral, O. K., Lima, J. B., Rocha, D. L. F. L., de Brito, H. A., Duarte, E. S., Bento, L. H. G., L. B. B. B., & Kubrusly, M. (2022). Active methodologies association with online learning fatigue among medical students. *BMC Medical Education*, 22(74), <https://doi.org/10.1186/s12909-022-03143-x>
- Deniz, M. E., Satıcı, S. A., Doenyaş, C., & Griffiths, M. D. (2022). Zoom fatigue, psychological distress, life satisfaction, and academic well-being. *Cyberpsychology, Behavior, and Social Networking*, 25(5), 270-277. <https://doi.org/10.1089/cyber.2021.0249>
- Engin Deniz, M., Satıcı, S. A., Doenyaş, C., & Griffiths, M. D. (2022). Zoom Fatigue, Psychological Distress, Life Satisfaction, and Academic Well-Being. *Cyberpsychology, Behavior, and Social*

- Networking*, 25(5), 270–277. <https://doi.org/10.1089/cyber.2021.0249>
- Fauville, G., Luo, M., Queiroz, A. C., Bailenson, J. N., & Hancock, J. (2021). Zoom exhaustion & fatigue scale. *Computers in Human Behavior Reports*, 4, 100119.
- Feijt, M., de Kort, Y., Bongers, I., Bierbooms, J., Westerink, J., & IJsselsteijn, W. (2020). Mental Health Care Goes Online: Practitioners' Experiences of Providing Mental Health Care During the COVID-19 Pandemic. *Cyberpsychology, behavior and social networking*, 23(12), 860–864. <https://doi.org/10.1089/cyber.2020.0370>
- Gard, T., Noggle, J. J., Park, C. L., Vago, D. R., & Wilson, A. (2014). Potential self-regulatory mechanisms of yoga for psychological health. *Frontiers in human neuroscience*, 8, 770. <https://doi.org/10.3389/fnhum.2014.00770>
- Giurge, L., & Bohns, V. K. (2020). 3 tips to avoid WFH burnout. *Harvard Business Review*.
- Healy, J. (1990). *Why children don't think and what we can do about it*. New York, NY: Touchstone.
- Iqbal, M. (2020). Zoom revenue and usage statistics. Business of apps. Retrieved February 12, 2021 from <https://www.businessofapps.com/data/zoom-statistics/>.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10(2), 144–156. <https://doi.org/10.1093/clipsy.bpg016>
- Jiang, M. (2020, April 22). The reason Zoom calls drain your energy. BBC. <https://www.bbc.com/worklife/article/20200421-why-zoom-video-chats-are-so-exhausting>
- Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative frame work. *Journal of environmental psychology*, 15(3), 169–182.
- Khoury B, Sharma M, Rush SE, Fournier C. (2015) Mindfulness-based stress reduction for healthy individuals: A meta-analysis. *J. Psychosom. Res.*;78:519–528. doi: 10.1016/j.jpsychores.2015.03.009.
- Kishida, M., Molenaar, P. C. M., & Elavsky, S. (2019). The impact of trait mindfulness on relational outcomes in novice yoga practitioners participating in an academic yoga course. *Journal of American college health: J of ACH*, 67(3), 250–262. <https://doi.org/10.1080/07448481.2018.1469505>
- Kushlev, K., & Dunn, J. (2014). Buying happiness: The limited role of materialism in fulfilling fundamental human needs. *Social Psychological and Personality Science*, 5(6), 661–671. doi: 10.1177/1948550614524446
- Kushlev, K., & Dunn, E. W. (2015). Checking email less frequently reduces stress. *Computers in Human Behavior*, 43, 220–228.
- Lacaille, J., Sadikaj, G., Nishioka, M., Carrière, K., Flanders, J., & Knäuper, B. (2018). Daily mindful responding mediates the effect of meditation practice on stress and mood: The role of practice duration and adherence. *Journal of Clinical Psychology*, 74(1), 109–122. <https://doi.org/10.1002/jclp.22489>
- Lawson, T., Comber, C., Gage, J., & Cullum-Hanshaw, A. (2010). Images of the future for education? Videoconferencing: A literature review. *Technology, Pedagogy and Education*, 19(3), 295–314. <https://doi.org/10.1080/1475939X.2010.513761>
- Lowenthal, P., Borup, J., West, R. & Archambault, L. (2020). Thinking Beyond Zoom: Using Asynchronous Video to Maintain Connection and Engagement During the COVID-19 Pandemic. *Journal of Technology and Teacher Education*, 28(2), 383–391. Waynesville, NC USA: Society for Information Technology & Teacher Education.
- Luo et al., 2021 Luo, M., Hancock, J. T., & Markowitz, D. M. (2021). *Zoom fatigue: The differential impact of*

- videoconferencing on men and women*. Stanford University. <https://www.pwc.com/us/en/Library/covid-19/us-remote-work-survey.html>
- Lee, J. (2020). *A neuropsychological exploration of Zoom fatigue*. *PsychiatricTimes*. <https://www.psychiatristimes.com/view/psychological-exploration-zoom-fatigue>
- Molla, R. (2020). The pandemic was great for Zoom. What happens when there's a vaccine? <https://www.vox.com/recode/21726260/zoom-microsoft-teams-videoconferencing-postpandemic-coronavirus>
- Montag, C., Rozgonjuk, D., Riedl, R., & Sindermann, C. (2022). On the associations between videoconference fatigue, burnout, and depression including personality associations. *Journal of Affective Disorders Reports*, 10, 100409. <https://doi.org/10.1016/j.jadr.2022.100409>
- Nguyen, M. H., Gruber, J., Marler, W., Hunsaker, A. et al. (2022). Staying connected while physically apart: Digital communication when face-to-face interactions are limited. *New Media & Society*, 24(9), 2046–2067. <https://doi.org/10.1177/1461444820985442>
- PwC. (2020, June 25). When everyone can work from home, what's the office for? <https://www.pwc.com/us/en/Library/covid-19/us-remote-work-survey.html>
- Rees, E.M., Nightingale, E.S., Jafari, Y. et al. COVID-19 length of hospital stay: a systematic review and data synthesis. *BMC Med* 18, 270 (2020). <https://doi.org/10.1186/s12916-020-01726-3>
- Riedl, R. (2022). On the stress potential of videoconferencing: definition and root causes of Zoom fatigue. *Electron Markets* 32, 153–177. <https://doi.org/10.1007/s12525-021-00501-3>
- Sánchez, S. P., Lampropoulos, G., & López-Belmonte, J. (2022). Comparing gamification models in higher education using face-to-face and virtual escape rooms. *NAER: Journal of New Approaches in Educational Research*, 11(2), 307-322. <https://doi.org/10.7821/naer.2022.7.1025>
- Spataro, J. (2020). The future of work—the good, the challenging & the unknown. <https://www.microsoft.com/en-us/microsoft-365/blog/2020/07/08/future-work-good-challenging-unknown/>
- Williams, N. (2021). Working through COVID-19: 'Zoom' gloom and 'Zoom' fatigue. *Occupational Medicine*, 71(3), 164-164.

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