

# **Do Challenge and Hindrance Stressors Effect Cyberloafing Differently? Attentiveness and Anger as Mediators and Trait Mindfulness as a Moderator**

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## **Abstract**

The objective of this study is to test the differential effect of challenge and hindrance stressors on cyberloafing, specifically using attentiveness and anger as mediators, respectively. It also investigates the effect of trait mindfulness as a moderator on the effect of hindrance stressors on cyberloafing through anger. We collected data from 304 full-time Indian employees, working in broad-ranging industries and functions. The findings showed that challenge stressors have an indirect negative effect on cyberloafing through attentiveness. The results also indicated that anger partially mediates the positive relationship between hindrance stressors and cyberloafing. Simple moderation analysis revealed that high trait mindfulness lowers the impact of hindrance stressors on anger. Moreover, trait mindfulness moderated the indirect effect of hindrance stressors on cyberloafing through anger, in a way that the indirect effect became weaker in the case of high trait mindfulness. To regulate cyberloafing, we discussed the importance of optimizing challenge stressors to increase attentiveness and enhancing trait mindfulness to weaken the negative effects of hindrance stressors on anger and cyberloafing in the context of the theoretical and practical contribution of the study.

**Keywords:** Cyberloafing, Challenge and Hindrance Stressors, Trait Mindfulness, Moderated Mediation.

## **1 Introduction**

Cyberloafing, or the behavior of employees spending time in a broad range of online activities for personal or non-job reasons during the scheduled working hours (Lim, 2002; Lim & Teo, 2022; Tandon et al., 2022; Wu et al., 2020) has become a major concern for organizations. It has been labelled as a “productivity killer” (Koay et al., 2022), a deviant behavior (Lim, 2002; She & Li, 2022) and withdrawal and counterproductive behavior (Askew et al., 2014) due to its far-reaching negative consequences. When employees waste a significant amount of time out of their scheduled working duration in cyberloafing, the ill effects do not stay limited to causing quality and productivity related inefficiency only (Alharthi, Levy, Wang, & Hur, 2021; D'Abate & Eddy, 2007), but those also raise ethical (Batabyal & Bhal, 2020; Block, 2001; Friedman, 2000), moral (Mazidi et al., 2020), legal (Cheng, Li, Zhai, & Smyth, 2014; Lim & Teo, 2005), financial (Jandaghi et al., 2021; Lim, Koay, & Chong, 2021; Wu et al., 2022; Zakrzewski, 2016) and security (Jiang, Tsohou, Siponen, & Li, 2020; Koay et al., 2022) related concerns. Reports suggest that 62% of the employees engage in cyberloafing regularly (Ethics Resource Center, 2012; She & Li, 2022). A recent qualitative study conducted in the Indian context by Batabyal and Bhal (2020) showed that employees' duration of cyberloafing range between 15 mins to 3 hours per day. This behavior can cost organizations around \$85 billion yearly (Zakrzewski,

2016). It can also be a major reason for distraction (O'Neill, Hambley, & Bercovich, 2014), which can potentially hamper the employees' performance in the organizations (Lim, Koay, & Chong, 2021). Hence, scholars are increasingly trying to unearth various antecedents and constructs to understand possible associations with cyberloafing for the purpose of controlling this behavior.

In this connection, researchers have investigated the influence of various constructs on cyberloafing like abusive supervision (Agarwal & Avey, 2020; Lim, Koay, & Chong, 2021), communication style of supervisors (Agarwal, 2019), organizational justice and injustice (Lim, 2002; Restubog et al., 2011), workplace ostracism and emotional exhaustion (Koay, 2018, Lim, Koay, & Chong, 2021), job burnout (Aghaz & Sheikh, 2016), coercive bureaucracy (Soral, Arayankalam, & Pandey, 2020), anger toward organization (Zhang, Akhtar, Zhang, & Sun, 2020) and exposure to aggression at the workplace (Andel et al., 2019).

An overarching causal factor used to explain these, and other influence factors is under the rubric of stress. Workplace stressors have been associated with cyberloafing (Lavoie & Pychyl 2001; Ng, Shao, & Liu, 2016). The concept of stress comes to the picture when job demands surpasses the resources (Lazarus & Folkman, 1984).

Cyberloafing has been said to be used as a coping mechanism when an employee encounters stress at the workplace (Page, 2015). However, past research has shown that not all stress is counterproductive. Stress is shown to have both positive and negative outcomes depending on its level and its nature/ sources. Challenge and hindrance stressors are shown to have different (and sometimes opposite) effect on work behaviors (Rodell & Judge, 2009; Xu & Wang, 2020). In this study, we use this stress framework for its impact on cyberloafing which has not been studied much (Zhou et al., 2021).

According to Cavanaugh, Boswell, Roehling, and Boudreau (2000) and Rodell and Judge (2009), certain job demands which are perceived as rewarding and beneficial because they contribute to a sense of achievement and growth are known as challenge stressors. Examples of this kind of stressors include high volume of work or assignments at a certain point, significant responsibilities, time pressure and time involvement (Cavanaugh et al., 2000; Rodell & Judge, 2009). In contrast, job demands which are perceived as obstacles, interferences and barriers to achieving one's valued objectives, are known as hindrance stressors (Cavanaugh et al., 2000; Rodell & Judge, 2009). Examples include lack of job security, prevalence of organizational politics, stalled career prospects, existence of red tapes and unclear role expectations (Cavanaugh et al., 2000; Rodell & Judge, 2009). In a recent study, Zhou et al. (2021) found that challenge and hindrance stressors effect cyberloafing differently; the former with a negative direct relation and the later one as the opposite. Their results also indicated that challenge stressors can have a positive indirect effect on cyberloafing through emotional exhaustion however resilience was not found to be significant mediator between challenge stressors and cyberloafing (Zhou et al., 2021). These results show that further investigation is needed to study the process paths through which challenge-hindrance stressors may impact cyberloafing. To further this understanding, we explore the mediating role of emotions and cognition in this relationship.

Emotions are considered as reactions to events (Weiss & Cropanzano, 1996, p.18). Affective events theory (Weiss & Cropanzano, 1996) suggests that events at the workplace can result to particular behaviors through emotional responses (Rodell & Judge, 2009). Subsequently, these emotions can in turn lead to different behaviors (Rodell & Judge, 2009; Xu & Wang, 2020). In

this study, our aim is to explore the mediating role of emotions between the relationship of challenge-hindrance stressors and cyberloafing. One possible classifications of emotions can be positive emotion and negative emotion (Weiss & Cropanzano, 1996, pp. 24-25). Positive emotion is a result of need satisfaction whereas negative emotion can be caused by failure in meeting needs of an individual (Xu & Wang, 2020). In that context, challenge stressors can create a positive emotion and the cognitive resource of attentiveness whereas hindrance stressors can result in a negative emotion like anger (Rodell & Judge, 2009; Xu & Wang, 2020). Meeting challenging job demands can induce an increased sense of attentiveness, which can facilitate building resources for the actor-agent when working toward growth and achievement, reducing the tendency to cyberloaf (Zhou et al., 2021). In contrast, hindrance stressors can invoke anger and logically the actor-agent can utilize cyberloafing as an “emotion focused”, “escape-avoidance coping strategy” (Henle & Blanchard, 2008, p. 386). Conservation of resource theory (COR) states that “people strive to retain, protect, and build resources and that what is threatening to them is the potential or actual loss of these valued resources” (Hobfoll, 1989, p. 513). When an employee encounters hindrance stressors and deals with negative emotions like anger in the process, the employee can choose to protect personal resources or energies by escaping to counterproductive and withdrawal behaviors like cyberloafing (Zhou et al., 2021). So, at the backdrop of challenge-hindrance stressors framework (Cavanaugh et al., 2000; Rodell & Judge, 2009), affective events theory (AET) (Weiss & Cropanzano) and conservation of resource theory (Hobfoll, 1989), the expectation of our study lies in the notion that challenge stressors will invoke more attentiveness and so it will have a negative indirect effect on cyberloafing where attentiveness will act as a mediator. On the contrary, hindrance stressors will generate stronger emotions like anger and so, it will positively and indirectly effect cyberloafing, through anger.

Further, we also explored a potential way to buffer the effect of hindrance stressors on anger, along with the possibility of reducing the impact the hindrance stressors on cyberloafing through anger. Research shows that people who are mindful, exhibit lesser negative affect when they encounter various stressors (Arch & Craske, 2010; Good et al., 2016). Mindful people tend to observe events with greater sense of objectivity by curbing automaticity and keeping a distance psychologically (Farb et al., 2007; Good et al., 2016; Hülshager et al., 2014). Mindfulness facilitates individuals with improved coping ability during chronic and stressed moments at the workplace by “decoupling habitual stimulus-response associations”, resulting to reinterpretation of the situations, faster recovery and developing resilience (Good et al., 2016, p. 131). Previous research has shown that mindfulness showed negative association with anger (Borders, Earleywine, & Jajodia, 2010) and hostility (Krishnakumar & Robinson, 2015). Hence, we propose trait mindfulness as a moderator on the effect of hindrance stressors on cyberloafing through anger. We particularly argue here that the effect of hindrance stressors on cyberloafing through anger will be weaker when the trait mindfulness of the employee is high versus low. Employees with relatively high score on trait mindfulness will tend to cyberloaf less when triggered by hindrance stressors and subsequent emergence of anger. This is consistent with the prior literature where mindfulness showed negative association with anger (Borders, Earleywine, & Jajodia, 2010) and in the context of cyberloafing, mindfulness has been found useful to reduce mind-wandering during the usage of smartphones for non-job purposes during working hours (Chen et al., 2022).

So, there are two key contributions of this research. First, based on Cavanaugh et al.’s (2000) framework of challenge-hindrance stressors, this research investigates the mediating effect of

attentiveness and anger, while examining the possible opposing relationships between challenge-hindrance stressors and cyberloafing. Second, we examine the moderating effect of trait mindfulness on the impact of hindrance stressors on cyberloafing through anger. Here, we particularly explore the change of strength of the relationship between hindrance stressors and anger and the change in the intensity of the indirect effect of anger between hindrance stressors and cyberloafing, when moderated by trait mindfulness of employees.

## **2 Literature Review and Hypotheses Development**

### **2.1 Cyberloafing**

Cyberloafing or the personal use of the 'organizational' internet during working hours at the workplace (Lim, 2002), or utilizing personal mobile-internet devices and online services during working hours for non-job purposes (Batabyal & Bhal, 2020) or spending time online during working hours for non-job reasons while operating from remote locations (O'Neill, Hambley, & Bercovich, 2014; O'Neill, Hambley, & Chatellier, 2014) is increasingly gaining attention among the information systems, management and organizational psychology scholars (Soral, Arayankalam, & Pandey, 2020). The emergence of this field can be tracked back to late 20<sup>th</sup> century (Polito, 1997) and early 21<sup>st</sup> century (Lim, 2002) when the term 'cyberloafing' came into the picture. Subsequently, other terms like "cyberslacking" (Friedman, 2000; Block, 2001), "personal internet use at work" (Garrett & Danzinger, 2008; Vitak, Crouse, & LaRose, 2011), "personal web usage in the workplace" (Anandarajan & Simmers, 2004; Kim & Byrne, 2011; Mahatanankoon, Anandarajan, & Igbaria, 2004) also started getting used interchangeably. Over the years, with the proliferation of ICT enabled personal mobile devices like smartphones, tablets etc. and easy accessibility and affordability of high-speed personal internet, cyberloafing through mobile devices also became a reality in the organizations (Andel et al., 2019; Askew, 2012; Jamaluddin, Ahmad, Alias, & Simun, 2015; Kwak et al., 2021; Sheikh, Atashgah, & Adibzadegan, 2015; Vitak, Crouse, & LaRose, 2011). Through the pervasiveness and impact of the internet, remote working facility came to existence, so did the concept and practice of remote-cyberloafing (O'Neill, Hambley, & Bercovich, 2014; O'Neill, Hambley, & Chatellier, 2014). This practice became more evident when the world encountered the issue of COVID-19; more and more organizations opted the 'work from home' culture as their complete or hybrid operational model (Zhong, Chen, Yan, & Luo, 2022). So, cyberloafing has evolved to be an umbrella term (Batabyal & Bhal, 2023) that refers to the abuse of the internet resources provided by the organizations and/or wasting the productive working hours by spending time online for non-work reasons using personal resources at the workplace (Batabyal & Bhal, 2020; Lim & Teo, 2022; Wu et al., 2020) and/or in the distributed work contexts (Tandon et al., 2022, p. 65).

### **2.2 Workplace Stressors and Cyberloafing**

Given widespread cyberloafing behavior and its consequent detrimental effects on organization, research has focussed on identifying causal factors like abusive supervision (Agarwal & Avey, 2020; Lim, Koay, & Chong, 2021), perceived injustice (Lim, 2002; Restubog et al., 2011), job burnout (Aghaz & Sheikh, 2016), workplace ostracism and emotional exhaustion (Koay, 2018, Lim, Koay, & Chong, 2021). Most of these observable causes are explained through perceived stress of the employees. Workplace stressors comes into the picture when job demands surpass individuals' resources (Lazarus & Folkman, 1984) or the coping ability with the same is considered stretched (Kahn & Byosserie, 1992). Scholars have

explored and empirically validated various ‘workplace stressors’ as antecedents of cyberloafing at the workplace. Lavoie and Pychyl (2001) threw light on the possibility that internet procrastination can be a way to get relief from stress. In the context of workplace, Henle and Blanchard (2008) showed cyberloafing as an emotion-focussed coping mechanism when an employee experiences higher role conflict and ambiguity in the workplace. Another study examining the personal web use of trainee teachers in England showed that personal web use at work also acts as a coping mechanism to manage workplace stressors or work intensification (Page, 2015). Ng, Shao and Liu (2016) utilised the literature of avoidance coping strategy, performance theory and theory of goal orientation and proposed that stress in a job context can lead to avoidance coping mechanism, which can subsequently lead to social media use at workplace for personal reasons. Based on the conservation of resources theory and general strain theory, Koay, Soh, & Chew (2017) did a study among ICT employees in Malaysia and found that job stress was positively and significantly associated with cyberloafing. Andel et al. (2019) examined another workplace stressor like workplace aggression in the context of cyberloafing and found that workplace aggression shares positive association with cyberloafing and the latter acts as a coping mechanism that weakens the relationship between workplace aggressions and job satisfaction and intent to turnover.

In contrast, Garrett and Danziger (2008) found that factors related to dissatisfaction at workplace such as stress did not share a significant association with surfing web for personal reasons at work. Varghese and Barber (2017) found that only role conflict was the significant positive predictor of cyberloafing, but role overload and role ambiguity were not. Another study which showed contrasting evidence related to job stress and cyberloafing was by Zoghbi-Manrique-de-Lara, and Sharifatashgah (2021). They unearthed that job stress was not significantly associated with cyberloafing and also did not act as a significant individual mediator between perceived crowding and cyberloafing. Güğərçin’s (2020) study showed mixed findings. While exploring the influence of multi-dimensional techno-stress (“techno-overload, techno-complexity and techno-invasion”) on cyberloafing, only techno-invasion was found to be a predictor of minor-cyberloafing (Güğərçin, 2020).

Prior literature has shown that there is inconsistency related to the influence of stressors on cyberloafing or other behavioral outcomes. However, in addition to the previous discussion, stress has also been seen to have certain positive effects in the work settings like performance at team level (Pearsall, Ellis, & Stein, 2009), performance in various roles (Wallace et al., 2009), work engagement (Crawford, LePine, & Rich, 2010) etc. LePine, Podsakoff, & LePine (2005) observed that the inconsistency in the stress-performance relationship can be explained from the perspective of good-bad stress where performance depends on the magnitude of it, giving it a quantitative mechanism (p. 766). On the other hand, the difference in results can be answered through a qualitative outlook in which one type of stressors is perceived as a way of learning whereas the other one as unnecessary obstacle (LePine, Podsakoff, & LePine, 2005). So, in this study, we explore the influence of different types of stressors on cyberloafing and the different process paths present in it from the perspective of challenge-hindrance stressors framework (Cavanaugh et al., 2000).

### **2.3 Challenge-Hindrance Stressors and Cyberloafing**

Literature suggests that not all forms of stressors operate in a similar way. Cavanaugh et al. (2000) suggested that work stress may not result to negative outcomes all the time; some stress can result to favorable outcomes. In this context, Cavanaugh et al. (2000) invoked the eustress-

distress theory (Selye, 1982, as cited in Cavanaugh et al., 2000) where eustress is said to lead to the feelings of challenge, fulfilment and achievement. Transactional stress theory (Lazarus & Folkman, 1984) states that upon encountering stressful demands and deciding on the possible strategies of coping, individuals attempt to understand the meaningfulness and seriousness of the same, along with the positive and negative outcomes it may result to, followed by appraising the resource availability and coping ability (Xu & Wang, 2020). As an extension of the mentioned theory, Cavanaugh et al.'s (2000) challenge-hindrance stressor framework postulates that challenging demands or challenge stressors lead to favorable consequences at work and distress producing demands or hindrance stressors to the opposite.

Extant literature has uncovered that challenge-hindrance stressors effect various work and affective outcomes differently. For example, Breevaart and Bakker (2018) showed that challenge stressors share positive relationship with work engagement, but hindrance stressors show the opposite result. This is aligned with the results of Tadić, Bakker, and Oerlemans, (2014). Challenge stressors have been found to have negative association with turnover (Kang & Jang, 2019) and positive association with transactive memory (Pearsall, Ellis, & Stein, 2009), daily positive affect (Tadić, Bakker, & Oerlemans, 2014), performance in the job (Zhang, LePine, Buckman, & Wei, 2014), well-being (Chen, Wang, Yuan, & Xu, 2021), life satisfaction (Flinchbaugh, Luth, & Li, 2015) whereas the influence of hindrance stressors have been the opposite.

In the context of cyberloafing, Zhou et al. (2021) found partial support for the hypothesis of challenge stressors having a negative relationship with cyberloafing, whereas full support for the hypothesis of hindrance stressors having a positive relationship with cyberloafing. It can be compared with the findings of Henle and Blanchard (2008). They showed that role conflict and role ambiguity, which can be closely understood as hindrance stressors, had a positive effect on cyberloafing; whereas role overload which can be perceived as challenge stressors, had a negative effect on cyberloafing (Henle & Blanchard, 2008; Zhou et al., 2021). However, Varghese and Barber (2017) did not find significant influence of role overload and role ambiguity on cyberloafing. Hence, testing the relationship between challenge-hindrance stressors and cyberloafing may lead to useful insights on cyberloafing.

The relationship between challenge-hindrance stressors and cyberloafing can be understood in the light of conservation of resources theory (Hobfoll, 1989). From the perspective of this theory, stress occurs when resource loss is either expected or actual in a process or there is a clear sense of deficit of gaining resources in a process (Hobfoll, 1989, p. 516). Here, resources stand for "personal characteristics, conditions, or energies" which are utilized to achieve certain objectives (Hobfoll, 1989, p. 516). As per this theory, the primary motivations of individuals are to reduce the net loss of resources when encountered with stressors and acquire more resources when not thwarted by inhibitory set of stressors (Hobfoll, 1989; Zhou et al., 2021; Rodell & Judge, 2009). In this study, we argue and hypothesize that challenge stressors can be seen as opportunities for growth and advancement which could facilitate an individual to fuel one's own reservoir of resources (Rodell & Judge, 2009). In that sense, an individual would be less likely to indulge in any counterproductive behavior like cyberloafing as the focus would be more on acquiring resources by engaging with challenge stressors (Rodell & Judge, 2009). However, when encountered with hindrance stressors which are perceived as interference and barriers to one's growth, the motivation would be the reduction or prevention of one's loss of personal resources and so, the individual would be more likely

to cyberloaf and utilize it in the form of withdrawal behavior for the purpose of preservation of existing set of resources (Zhou et al., 2021). Accordingly, we propose the following hypotheses:

**H1a:** Challenge stressors will negatively impact cyberloafing.

**H1b:** Hindrance stressors will positively impact cyberloafing.

## **2.4 Attentiveness and Anger as Mediators**

Besides studying the impact of two types of stressors, we wanted to study the process paths through which these stressors lead to different behaviors. Cognitive and affective reactions mediate a stimulus and the behavioral response to the stimulus. Using the affective events theory (Weiss & Cropanzano, 1996), we look at the different emotional responses to the two types of stressors as the mediator of this relationship. The central tenet of affective events theory is related to the “structure, causes and consequences of affective experiences at work” (p. 11). The two main components which are at the core of affective events theory are mood and emotions (p.17). Emotions are considered to be arising as a response to events (Weiss & Cropanzano, 1996). Individuals tend to react emotionally when they encounter stressful events or situations at the workplace or during working hours, which subsequently lead to typical attitudinal and behavioral consequences (Weiss & Cropanzano, 1996). Research suggests that challenge stressors which are perceived as beneficiary in nature as far as the consequences are concerned, invoke positive emotions like attentiveness (Rodell & Judge, 2009). In contrast, hindrance stressors which are perceived as negative for blocking the path to attain one’s objectives, invoke negative emotions like anger (Rodell & Judge, 2009). Affective events theory states that specific emotions can determine the nature of the path to certain behaviors (Weiss & Cropanzano, 1996, p. 23). For example, by combining transactional stress theory (Lazarus & Folkman, 1984) and affective events theory (Weiss & Cropanzano, 1996), Rodell and Judge (2009) found a positive indirect effect of challenge stressors on citizenship behaviors where attentiveness acted as a mediator. Consistent with the mentioned framework and comparable theory base, Xu and Wang (2020) uncovered that challenge stressors have a negative impact and hindrance stressors have a positive impact on unethical pro-organizational behavior, mediated by attentiveness.

Attentiveness is manifested in alertness, concentration and determination (Rodell & Judge, 2009). Attending to challenge stressors and overcoming the same in the process of work can be rewarding, fulfilling and can evoke positive emotions (Cavanaugh et al., 2000; Rodell & Judge, 2009; Xu & Wang, 2020). An individual, who happens to face challenge stressors will be inclined to feel more alert and attentive in the process (Xu & Wang, 2020) in order to complete the tasks in hand (Rodell & Judge, 2009). This will naturally facilitate the employee to prioritize the work in hand without being distracted in mind-wandering or time-wasting behaviors, like cyberloafing. Moreover, taking cues from conservation of resources theory (Hobfoll, 1989), positive emotion like attentiveness at the time of attending to challenge stressors can rejuvenate the resource pool of the individual, resulting to lesser tendency for any counterproductive behavior like cyberloafing (Xu & Wang, 2020). Hence, we propose the following hypotheses:

**H2a:** Challenge stressors will positively impact attentiveness.

**H2b:** Attentiveness will negatively impact cyberloafing.

**H2c:** There will be a negative indirect relationship between challenge stressors and cyberloafing through attentiveness.

Affective events theory (Weiss & Cropanzano, 1996) suggests that negative events can invoke negative emotion like Anger. Anger is experienced in the form of psychological distress when an individual faces adverse situation, unexpected or undesirable in the common process of normal functioning (Khansa et al., 2017; Nyer, 1997). Hindrance stressors hinder the process of goal attainment and personal growth at the workplace (Cavanaugh et al., 2000), and they can lead to a high-intensity negative emotion like anger (Xu & Wang, 2020). Extant literature indicates that anger is associated with counterproductive behaviors (Rodell & Judge, 2009), including cyberloafing (Zhang et al., 2020; Khansa, Kuem, Siponen, & Kim, 2017). Additionally, from the perspective of conservation of resources theory (Hobfoll, 1989), individuals experiencing anger due to a response of hindrance stressors, will attempt to restore emotional resources by immersing one's self in the world of internet for personal purposes (Zhou et al., 2021). Moreover, in order to alleviate negative emotions like anger, individuals can be more prone to exhibit counter-productive behaviors as exercising "evening the score" (Spector & Fox, 2002; Rodell & Judge, 2009). Hence, we propose the following hypotheses:

**H3a:** Hindrance stressors will positively impact anger.

**H3b:** Anger will positively impact cyberloafing.

**H3c:** There will be a positive indirect relationship between hindrance stressors and cyberloafing through anger.

## **2.5 Trait Mindfulness as a Moderator of Hindrance Stressors-Cyberloafing Relationship**

However, this causal relationship between hindrance stressors and cyberloafing can be mitigated and moderated by some factors, mindfulness being one of the important ones. Mindfulness is defined as "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 1994, p. 4), which refers to working in a way that is quite opposite to performing in the automatic fashion (Zoghbi-Manrique-de-Lara, Viera-Armas, & García, 2019). The origin of the mindfulness concept can be tracked back to early western and Buddhist literature (Rhys Davids, 1881, as cited in Schuman-Olivier et al., 2020; Sun, 2014). It has been found to be beneficial for improving the stability, control and efficiency with respect to the attention and enhancing cognitive flexibility and capacity (Good et al., 2016). Mindfulness has been classified as a 'trait' and 'state', where the former reflects a person's predisposition of living a mindful life in general (Baer et al., 2006) and the latter refers to as experiences through mindfulness meditation (Kiken et al., 2015; Lau et al., 2006). Extant literature suggests that mindfulness helps in regulating stress (Creswell & Lindsay, 2014), improving performance at the job (Dane & Brummel, 2014) and shares a positive association with prosocial behaviors (Donald et al., 2019). Trait mindfulness has been particularly found to be associated with greater ethical behavior and lesser deviant behaviors (Reb, Narayanan, & Ho, 2015). A study done by Krishnakumar and Robinson (2015) showed that trait mindfulness had a significant relation with lesser instances of counterproductive behaviors, in which reduction in hostile feelings mediated the effect. In the context of cyberloafing, mindfulness has been found useful to reduce mind-wandering during the usage of smartphones for non-job purposes during working hours (Chen et al., 2022). Several studies have found that mindfulness is associated with lower levels of anger (Borders, Earleywine, &



Jajodia, 2010) and hostility (Krishnakumar & Robinson, 2015) too. In this paper, we propose that given its impact both on counterproductive behavior and anger, mindfulness would impact this relationship. Specifically, we hypothesize that the hindrance stressors' indirect effect on cyberloafing through anger, will be weaker when the trait mindfulness of the employee is high versus low. Employees with relatively high score on mindfulness will be relatively less inclined to spend time on cyberloafing when triggered by hindrance stressors and subsequent emergence of anger.

**H4a:** Trait mindfulness will moderate the positive relationship between hindrance stressors and anger such that the relationship will be weaker when trait mindfulness is high.

**H4b:** Trait mindfulness will moderate the indirect effect of hindrance stressors on cyberloafing through anger such that the indirect effect will be weaker when trait mindfulness is high.

The research model can be found in Figure 1.

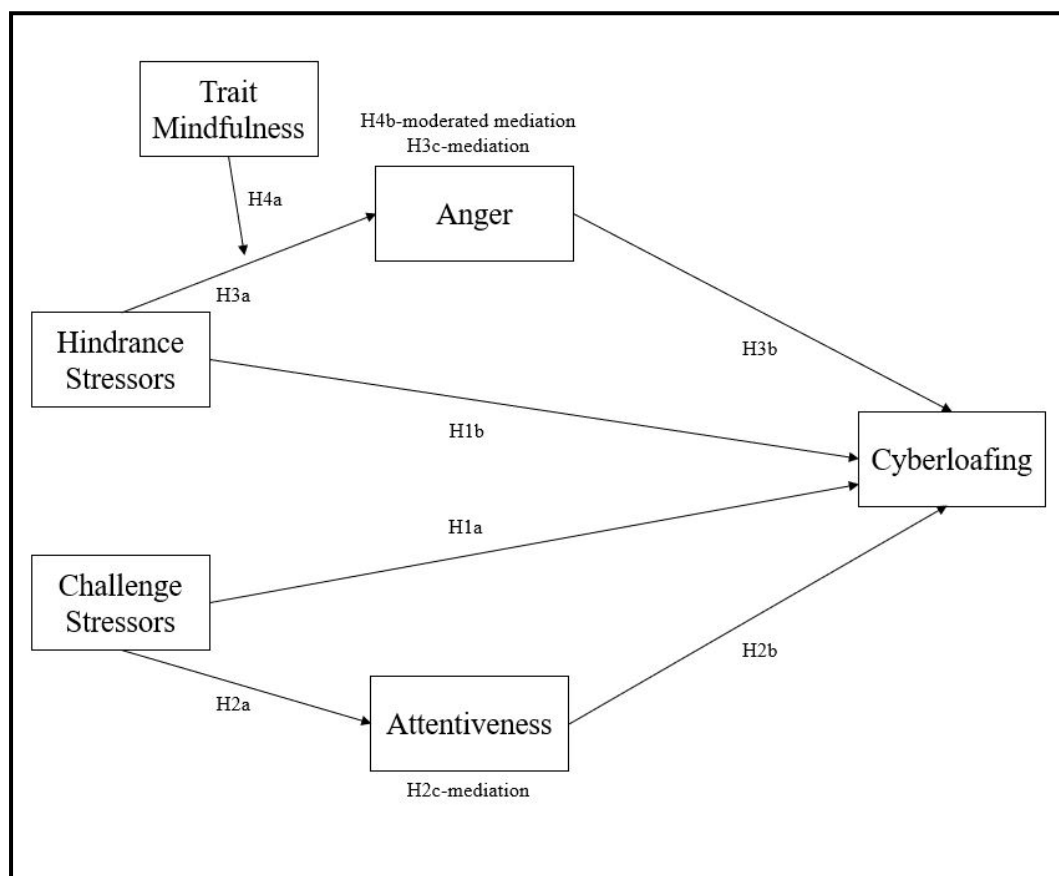


Figure 1. Research model

### 3 Methods

#### 3.1 Data Collection and Demography of Participants

For our research work, we collected data from working employees involved in India in broad-ranging industries and domains, which is aligned with past research (Usman et al., 2021). We collected the data from employees who were working in different business sectors, which include IT, Engineering, Telecom, E-Commerce, Banking, Finance, Consultancy, Logistics, Insurance, Energy, Oil and Gas, FMCG, Pharma and Healthcare, Hospitality etc. Extant

literature on cyberloafing suggests that in many studies, data had been collected from school or college students as well. In our work, we have only focused on cyberloafing among working employees in various business organizations. In order to reach and invite prospective candidates, we utilized different social and professional networks (including social media platforms) (Zhong et al., 2022), along with industry and alumni networks. As per the recent update available on the Ministry of Electronics and Information technology (Government of India) portal, direct employment numbers in IT services have reached 4.47 million (with 36 % women participation). This sector also generates huge ancillary employment in real estate, hospitality and transportation sectors (MEITY, 2022). Latest reports suggest that IT sector is leading the hiring growth in India, followed by other sectors like banking, insurance services, financial services, retail, healthcare, automation, hospitality, pharma etc. (Bhattacharyya, 2022; IBEF, 2021). Ministry of Labour and Employment's (Govt of India) report indications that around 15 lakh employees work in commercial banking systems (2022). Hence, our sample represents quite fairly the white-collar job population in India. We used purposive (Akbulut et al., 2016) and snowball sampling method (Charoensukmongkol, 2014; Hu et al., 2021) to have representation from variety of business industries, along with ensuring the fair representation of age, gender, ethnic and regional diversity of our country's workforce. As we were investigating the employee cyberloafing in India, only those participants were requested to participate who were working in business organizations as an employee in India at the time of data collection. First, we contacted the prospective candidates through various online means for voluntary participation in our research work. The individuals who gave their permission to be a part of the research voluntarily, we shared the online questionnaire with them. The participants still had the option of denying to participate from the study even before starting to submit their responses, along with the option of withdrawing from the study at any point of time during submitting their responses. The opening page of the questionnaire mentioned the topic in focus, along with the utility of the research and assurance of the anonymity and confidentiality of the participants. Only after the participants gave their consent to the details mentioned, they could move to the second page of the questionnaire where the actual submission of the responses began.

For the purpose of data collection, 622 prospective working participants were contacted for the voluntarily participation in the research work. We received 304 useful responses via online mode which were finally retained for the study. Around 27 % of the sample were females. The minimum and maximum age of the participants were 21 years and 51 years, in which the mean value stood at approximately 28 years, with a standard deviation of 3.86. Majority of the participants possessed post-graduate qualifications in varied fields. The details on the demographic details like age, gender, educational level, total number of years of work experience, sector in current employment, present designation in the organization, place of working (working from home, working from office and both) were recorded through the questionnaire. The summary of the demography of the participants can be found in Table 1.

In our study we have included participants from a wide range of industries. In terms of female workforce participation in white-collar jobs, a report (Bhattacharyya, 2016) suggests that it stands arounds 23%. In our sample demography, around 27% participants are females, which is neither very high or low from the present situation prevalent in India and represents the gender diversity of the country's workforce.

Measure	Value	Frequency	Percentage	Mean	SD
Gender	Male	222	73.03		
	Female	82	26.97		
Qualification	Graduate	50	16.45		
	Post Graduate	254	83.55		
Age (in years)				27.96	3.86
Total work exp				4.68	3.78
Place of work	Working from home	187	61.51		
	Working from office	41	13.49		
	Working from both home and office	76	25.00		

Table 1. Demographic profile of the participants (N= 304)

### 3.2 Measures

#### 3.2.1 Cyberloafing

For cyberloafing, we utilized a 13-item scale adapted from Lim and Teo (2005) and Sheikh, Atashgah, and Adibzadegan (2015). For emailing activities, we dropped the item ‘receive’ as we believe it overlaps with ‘check’ and ‘send.’ We also consulted with two academic experts regarding the items and after careful moderation, we incorporated the scale. The 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5) was utilized for response collection. Item 11 (“During working hours, I visit adult-oriented (sexually explicit) Websites”) was removed due to poor loading. Sample items of the scale include “During working hours, I visit news websites for personal reasons”, “During working hours, I use Instant Messaging Apps (e.g. Whatsapp) for personal reasons.”, “During working hours, I use social media platforms (e.g. Facebook, Instagram, etc.) for personal reasons.”. Cronbach’s alpha of the cyberloafing scale was 0.87.

#### 3.2.2 Challenge Stressors and Hindrance Stressors

We adopted Cavanaugh et al.’s (2000) scale with regards to challenge and hindrance stressors, in which there are 11 items in total. Challenge stressors consist of 6 items and Hindrance stressors consist of 5 items. Respondents are asked to assess the degree of stress each of these items cause them at their respective workplaces or working hours. Challenge stressors’ sample items include “The number of projects and or assignments I have”, “The volume of work that must be accomplished in the allotted time”. Items related to Hindrance stressors include “The lack of job security I have”, “The degree to which my career seems stalled”. Cronbach alpha value of challenge stressors was 0.91 and that of hindrance stressors was 0.85.

#### 3.2.3 Attentiveness and Anger

Attentiveness and Anger were measured using the scale incorporated by Rodell and Judge (2009). The scale consisted of number of words or adjectives which can describe different feelings and emotions. Respondents were asked to share the degree of those emotions they felt during working hours or at the workplace in recent times. 5-point Likert scale (1= very slightly or not at all to 5 = extremely) was utilised for capturing the data. Attentiveness consisted of 3 items (Attentive, Alert and Determined) and Anger was measured using 2 items (Anger, Hostility). Cronbach alpha values of Attentiveness and Anger were 0.811 and 0.79, respectively.

### 3.2.4 Trait Mindfulness

We used Brown and Ryan 's (2003) 15-item Mindful Attention Awareness Scale to assess trait mindfulness. Responses were obtained on a 6-point Likert scale (1 = almost always to 6 = almost never). "I could be experiencing some emotion and not be conscious of it until sometime later", "I find it difficult to stay focused on what's happening in the present", "It seems I am 'running on automatic' without much awareness of what I'm doing" are few sample items. The value of Cronbach's alpha of trait mindfulness was 0.93.

### 3.2.5 Control Variable

We considered gender (Male =1 and Female = 2) as a control variable (Lim, Koay, & Chong, 2021) as past literature indicates that gender influences cyberloafing significantly (Vitak, Crouse, & LaRose, 2011; Garrett & Danzinger, 2008). This is needed for the purpose of preventing potential confounding effect (Henle & Blanchard, 2008; Koay, 2018).

## 4 Results

We followed comprehensive measures to prevent common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) related concerns. At the time of data collection, the informed consent section clearly mentioned about keeping the responses confidential and anonymous, along with the declaration of utilizing the responses for academic purposes only. This was done to prevent any potential bias while collecting the data and encourage honest and true responses from the participants (Bhimavarapu, Mohanty, Acharya, & Gupta, 2021; Soral, Arayankalam, & Pandey, 2020). Subsequently, we checked the existence of any significant common method bias by three ways. At first, Harman's single-factor test was conducted (Harman, 1960; Singh, 2020). We loaded all the constructs in the factor analysis as single factor for examining its variance in the unrotated solution. The general factor consisting of all the variables was set to be loaded into one factor, which accounted for the 24% of variance (N= 304), being it much less than the recommended 50 % threshold (Singh, 2020; Podsakoff et al., 2003). Additionally, to check the existence of any multicollinearity problems in the data, we assessed the variance inflation factor (VIF) of all constructs (Bhimavarapu et al., 2021; Chatterjee, 2021). The results showed that all the values were less than 2 and within the acceptable range (Lin & Lu, 2015; Xu, Zheng, & Yang, 2023). We also checked the correlation matrix (Table 3) in order to assess the presence of any high inter-correlation ( $r > 0.90$ ) which might indicate potential common method bias issue (Bhimavarapu et al., 2021; Pavlou, Liang, & Xue, 2007). The result showed no such instance. Hence, we could conclude that common method bias was not a significant concern in our study.

Construct	Items	Mean	S.D.	Factor Loadings	CR	AVE	CA
Cyberloafing	CL1	3.32	1.22	0.61	0.86	0.34	0.87
	CL2	3.81	0.98	0.45			
	CL3	3.24	1.14	0.59			
	CL4	2.46	1.25	0.70			
	CL5	3.17	1.18	0.61			
	CL6	2.77	1.22	0.63			
	CL7	3.02	1.21	0.48			
	CL8	2.51	1.30	0.56			

	CL9	2.44	1.16	0.48			
	CL10	1.57	0.96	0.45			
	CL12	2.57	1.24	0.68			
	CL13	2.49	1.27	0.71			
<b>Challenge Stressors</b>	CHAL1	2.93	0.98	0.76	0.90	0.60	0.91
	CHAL2	2.91	1.09	0.81			
	CHAL3	3.02	1.02	0.86			
	CHAL4	3.02	1.08	0.84			
	CHAL5	2.99	1.02	0.73			
	CHAL6	3.03	1.05	0.64			
<b>Hindrance Stressors</b>	HIND1	2.96	1.31	0.75	0.85	0.53	0.85
	HIND2	2.81	1.21	0.75			
	HIND3	2.67	1.22	0.85			
	HIND4	2.44	1.30	0.65			
	HIND5	2.88	1.29	0.61			
<b>Mindfulness</b>	MIND1	3.73	1.17	0.48	0.93	0.49	0.93
	MIND2	4.38	1.31	0.60			
	MIND3	4.02	1.33	0.73			
	MIND4	3.71	1.38	0.62			
	MIND5	3.85	1.44	0.57			
	MIND6	3.80	1.61	0.50			
	MIND7	4.08	1.32	0.85			
	MIND8	4.14	1.37	0.87			
	MIND9	3.99	1.29	0.72			
	MIND10	4.21	1.31	0.81			
	MIND11	3.67	1.34	0.63			
	MIND12	4.56	1.34	0.74			
	MIND13	3.54	1.45	0.68			
	MIND14	4.20	1.21	0.86			
	MIND15	4.56	1.44	0.65			
<b>Attentiveness</b>	ATTEN1	3.90	0.83	0.86	0.82	0.61	0.81
	ATTEN2	3.89	0.84	0.80			
	ATTEN3	4.01	0.86	0.66			
<b>Anger</b>	ANG1	2.45	1.25	0.83	0.79	0.65	0.79
	ANG2	2.11	1.20	0.78			

Table 2. Items, means, standard deviations and factor loadings of each item, average variance extracted (AVE), composite reliability (CR), and Cronbach's alpha of the variables

We conducted CFA at the beginning for assessing the construct validity. We evaluated the model fit by including all variables in a measurement model. The sample size being 304, the study fulfilled the parameters to sample size ratio 1:5 criteria, which was recommended by prior researchers (Gupta & Bhal, 2020; Bentler & Chou, 1987). The results computed through

AMOS software showed satisfactory model fit indices (CMIN/DF = 1.737, CFI = 0.909, GFI = 0.820, TLI = 0.902, RMSEA = 0.049) compared to the single factor model (CMIN/DF = 4.437, CFI = 0.567, GFI = 0.550, TLI = 0.543, RMSEA = 0.107) (Hu & Bentler, 1999; Huo et al., 2022; Xie, Pinto, & Zhong, 2022). To test reliability, we computed the Cronbach's alpha (CA) and composite reliability (CR) values. The summary of these values can be found in Table 2. Minimum recommended values of CA and CR are 0.6 and 0.7, respectively (Hair et al., 2017; Verma & Singh, 2022). In our study, CA values ranged from 0.79 to 0.93, and the range of CR values was from 0.79 to 0.93, showing satisfactory reliability. Factor loadings ranged from 0.45 to 0.87, all above required cut-off 0.4 (Aunger et al., 2010; Kim & Koh, 2018; Marikyan, Papagiannidis, Rana, & Ranjan, 2022) and significant. To assess the convergent validity of the variables, we checked the average variance extracted (AVE). In our study, the minimum and maximum values of AVE were 0.34 and 0.65, respectively. The details can be found in Table 2. According to Fornell and Larcker (1981), if average variance extracted values are lesser than 0.5 but the composite reliability values are greater than 0.6, the convergent validity of a dimension can be considered sufficient (Lam, 2012) as average variance extracted is a more conservative measure.

For discriminant validity, we adhered to the Fornell and Larcker criterion, in which the square root of AVE of each variable should exceed the values of inter-correlations. Table 3 shows that discriminant validity stands satisfied, and each construct was unique and explicitly independent (Verma & Singh, 2022).

		Mean	SD	1	2	3	4	5	6	7
1	Cyberloafing	2.78	0.753	<b>0.59</b>						
2	Challenge Stressors	2.986	0.858	(-) 0.089	<b>0.78</b>					
3	Hindrance Stressors	2.755	1.000	0.197**	0.267**	<b>0.73</b>				
4	Attentiveness	3.936	0.719	(-) 0.371**	0.131*	(-) 0.215**	<b>0.78</b>			
5	Mindfulness	4.029	0.965	(-) 0.334**	(-) 0.007	(-) 0.390**	0.548**	<b>0.70</b>		
6	Anger	2.280	1.110	0.199**	0.054	0.398**	(-) 0.287**	(-) 0.411**	<b>0.81</b>	
7	Gender	1.270	0.445	(-) 0.062	0.107	(-) 0.020	0.099	0.045	0.06	

Note. \*\*. Correlation is significant at the 0.01 level (2-tailed); \*. Correlation is significant at the 0.05 level (2-tailed). Values in bold are the square root of AVE scores of the variables.

Table 3. Assessing discriminant validity through Fornell-Larcker criterion

#### 4.1 Statistical Analysis

Initially, we checked the significance of inter-correlation between the constructs. Subsequently, we analyzed simple mediation through PROCESS macro in SPSS (Hayes, 2013). We particularly incorporated PROCESS model number 4 which also facilitates utilizing 5000 bootstrap estimates that helps in constructing 95% confidence interval related to the indirect effect during the testing of mediation. We tested H4a and H4b by means of moderated mediation analysis. To assess the moderating effect of trait mindfulness, we utilised model number 7 in PROCESS macro in SPSS (Hayes, 2013).

#### 4.2 Testing of Hypotheses

Table 3 shows the values related to the means, standard deviations and inter-correlations of the constructs undertaken in our present research work. It shows that challenge stressors have

a significant positive association with attentiveness ( $r = 0.13$ ,  $p < 0.05$ ) and attentiveness has a significant negative correlation with cyberloafing ( $r = -0.37$ ,  $p < 0.01$ ) however challenge stressors do not share a significant association with cyberloafing ( $r = -0.09$ ,  $p > 0.05$ ). Hence, H2a and H2b received initial support but H1a did not. It also shows that the hindrance stressors have a significant positive correlation with cyberloafing ( $r = 0.197$ ,  $p < 0.01$ ), and anger ( $r = 0.398$ ,  $p < 0.01$ ), supporting H1b, as well as H3a. Moreover, the zero-order correlation matrix reveals that anger has a significant positive relation with cyberloafing ( $r = 0.199$ ,  $p < 0.01$ ), lending initial support to H3b.

Subsequently, we used PROCESS MACRO (model 4) to check the significance of the mediating effect of attentiveness between challenge stressors and cyberloafing. Unlike Barron and Kenny's (1986) methodology of checking mediation, PROCESS MACRO doesn't require that the independent variable (challenge stressors in our study) and dependent variable (cyberloafing in our case) have to be associated for the purpose of simple mediation analysis (Hayes, 2013). The process macro-output (Table 4) indicated that challenge stressors had a significant positive effect on attentiveness (coeff = 0.1023, SE = 0.0480,  $t = 2.1313$ ,  $p < 0.05$ , 95 % confidence interval = 0.0078 to 0.1967) and attentiveness had a negative effect on cyberloafing (coeff = -0.3813, SE = 0.0568,  $t = -6.7189$ ,  $p < 0.01$ , 95 % confidence interval = -0.4930 to -0.2697). It also showed that challenge stressors did not have a significant effect on cyberloafing (coeff = -0.0342, SE = 0.0476,  $t = -0.7178$ ,  $p > 0.05$ , 95 % confidence interval = -0.1279 to 0.0595). Hence, we found support to H2a and H2b but not H1a. The bootstrap analysis showed (Table 5) a statistically significant indirect effect as zero is not a part of the PROCESS generated 95% bootstrap confidence interval (effect = -0.0390, SE = 0.0209, 95 % confidence interval = -0.0842 to -0.0019). The results also uncovered that there was a significant negative indirect effect of challenge stressors on cyberloafing through attentiveness, supporting H2c.

For testing H3c, we again used PROCESS MACRO (model 4) to check the significance of the mediating effect of anger between hindrance stressors and cyberloafing. The results showed (Table 4) that hindrance stressors had a significant positive effect on anger (coeff = 0.4436, SE = 0.0585,  $t = 7.5831$ ,  $p < 0.01$ , 95 % confidence interval = 0.3285 to 0.5587) and anger had a significant positive effect on cyberloafing (coeff = 0.1010, SE = 0.0415,  $t = 2.4347$ ,  $p < 0.05$ , 95 % confidence interval = 0.0194 to 0.1826). The bootstrap analysis showed (Table 5) a statistically significant indirect effect as zero is not a part of the PROCESS generated 95% bootstrap confidence interval (effect = 0.0448, SE = 0.0186, 95 % confidence interval = 0.0103 to 0.0840). It revealed that there was a positive indirect association between hindrance stressors and cyberloafing through anger. Moreover, hindrance stressors had a significant direct effect on cyberloafing (effect = 0.1026, SE = 0.0459,  $t = 2.2334$ ,  $p < 0.05$ , 95 % confidence interval = 0.0122 to 0.1930). Hence, we found support to H3a and H3b and we can conclude that anger partially mediated the association between hindrance stressors and cyberloafing, supporting H3c partially.

For testing H4a and H4b, we utilized PROCESS MACRO model number 7 to perform moderated mediation analysis. In the context of H4a, we found that the interaction term was significant (coeff = -0.1255,  $t = -2.4953$ ,  $p < 0.05$ , 95% confidence intervals = -0.2245 to -0.0265). Table 6 indicates that when trait mindfulness was at a low level (-1 SD), the effect of hindrance stressors on anger was 0.4433, and the 95% confidence interval was 0.2861 to 0.6005, which did not include zero and indicated a significant effect. When trait mindfulness was at the mean level, hindrance stressors' effect on anger was 0.3222, and the 95% confidence interval was

0.2037 to 0.4406, which did not include zero and indicated a significant effect. When trait mindfulness was at a high level (+1 SD), the effect of hindrance stressors on anger was 0.2010, and the 95% confidence interval was 0.0541 to 0.3480, which did not include zero and indicated a significant effect. So, the higher the level of trait mindfulness, the lower the effect of hindrance stressors on anger. Hence, we found support to H4a (Figure 2).

CHAL → ATTEN → CL	$\beta$	se	t	p	LLCI	ULCI
CHAL → ATTEN	0.1023	0.0480	2.1313	0.03	0.0078	0.1967
ATTEN → CL	-0.3813	0.0568	-6.7189	0.00	-0.4930	-0.2697
CHAL → CL	-0.0342	0.0476	-0.7178	0.47	-0.1279	0.0595
Total effect of CHAL → CL	-0.0732	0.0506	-1.4462	0.15	-0.1727	0.0264
HIND → ANG → CL	$\beta$	se	t	p	LLCI	ULCI
HIND → ANG	0.4436	0.0585	7.5831	0.00	0.3285	0.5587
ANG → CL	0.1010	0.0415	2.4347	0.02	0.0194	0.1826
HIND → CL	0.1026	0.0459	2.2334	0.03	0.0122	0.1930
Total effect of HIND → CL	0.1474	0.0424	3.4733	0.00	0.0639	0.2310

Note. CHAL= Challenge stressors, HIND = Hindrance stressors, ATTEN = Attentiveness, ANG = Anger, CL = Cyberloafing

Table 4 Mediation analysis

	Effect	BootSE	BootLLCI	BootULCI
CHAL → ATTEN → CL	-0.0390	0.0209	-0.0842	-0.0019
HIND → ANG → CL	0.0448	0.0186	0.0103	0.0840

Table 5. Indirect effects analysis

Mindfulness	Effect	SE	t	p	LLCI	ULCI
-0.9652	0.4433	0.0799	5.5495	0.0000	0.2861	0.6005
0.0000	0.3222	0.0602	5.3526	0.0000	0.2037	0.4406
0.9652	0.2010	0.0747	2.6919	0.0075	0.0541	0.3480

Table 6. Conditional effects of hindrance stressors at values of trait mindfulness

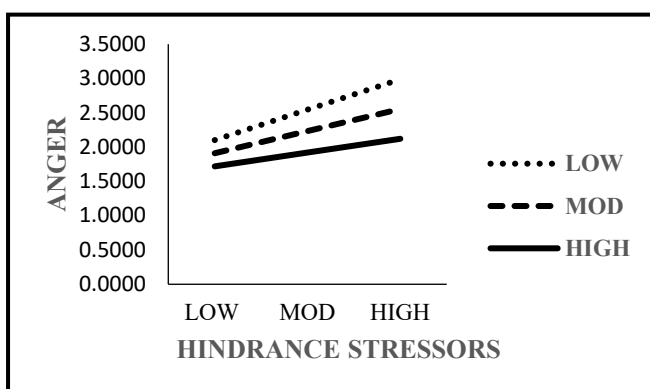


Figure 2. Trait mindfulness as a moderator on the association between hindrance stressors and anger

Table 7 shows that zero is not a part of the moderated-mediation index, which indicates the significance of the conditional indirect effect. Table 8 shows that the indirect relationship of hindrance stressors on cyberloafing through anger is significant when trait mindfulness is



high, moderate or low. Table 7 and 8 also show that mindfulness moderates the indirect effect of hindrance stressors on cyberloafing through anger in such a way that the indirect effect becomes weak in the case of high trait mindfulness, supporting H4b.

Moderator: Trait Mindfulness	Index	BootSE	BootLLCI	BootULCI
Hindrance Stressors>Anger>Cyberloafing	-0.0127	0.0071	-0.0293	-0.0017

Table 7. Index of moderated mediation

Mediator	Control	Indirect Effect	BootSE	BootLLCI	BootULCI
Anger	-0.9652	0.0448	0.0187	0.0099	0.0832
Anger	0.0000	0.0325	0.0135	0.0074	0.0609
Anger	0.9652	0.0203	0.0106	0.0026	0.0441

Note. Values for trait mindfulness (moderator) are the mean and plus/minus one standard deviation (SD) from mean.

Table 8. Conditional indirect effect analysis

## 5 Discussion

The objective of this research work was to examine how challenge and hindrance stressors effect cyberloafing differently, along with attentiveness and anger as mediators, respectively. We also examined how trait mindfulness can be beneficial for reducing the effect of hindrance stressors on cyberloafing, as mediated through anger. For this purpose,

we collected data from 304 working individuals from various industries and found support to most of the hypotheses. The results show that all stressors do not impact cyberloafing similarly, specifically when mediated through various emotions.

### 5.1 Differential Influence of Challenge and Hindrance Stressors on Cyberloafing

We hypothesized that job stressors which are appraised as challenge, will significantly and negatively impact cyberloafing whereas the job stressors which are perceived as hindrance, will be positively and significantly related to cyberloafing. The results have shown support to the latter, but not the former. Zhou et al.'s (2021) study found no significant correlation between challenge stressors and cyberloafing at the beginning, but observed a direct negative effect of challenge stressors on cyberloafing. Hence, they labelled challenge stressors as double-edged swords (Zhou et al., p. 7). Though the nature of hindrance stressors can seem threatening and become cause of severe energy depletion, challenge stressors can be seen as manageable but not necessarily favorable all the time (Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010, p. 742). Challenge stressors of higher degree can offset the benefits drawn from challenge stressors of optimum nature; causing problems related to the employees' well-being and performance (Edwards et al., 2014; Nixon et al., 2011). It can also have a positive indirect effect on cyberloafing when emotional exhaustion acts as a mediator (Zhou et al., 2021). Mazzola and Disselhorst (2019) reckoned the curvilinear nature of the association between challenge stressors and work-related outcomes (p. 958), which can potentially explain the non-significant direct association between challenge stressors and cyberloafing in our present work.

## **5.2 Mediating Role of Attentiveness and Anger**

Theoretically, this study extended our understanding on the differential effect of challenge-hindrance stressors in cyberloafing literature. It particularly investigated the role of two emotions, attentiveness and anger as mediators. We hypothesized that challenge stressors would lead to increased attentiveness, and attentiveness will negatively impact cyberloafing. We particularly highlighted the mediating effect of attentiveness between challenge stressors and cyberloafing. Zhou et al. (2021) did not find resilience to be a significant mediator between challenge stressors and cyberloafing. In our paper, we observed that challenge stressors lead to attentiveness, which in turn negatively related to cyberloafing. The results also indicated that there exists a negative indirect effect of challenge stressors on cyberloafing through attentiveness.

In the context of hindrance stressors, we expected that hindrance stressors will lead to anger, and anger will positively impact cyberloafing. We also specifically looked at the role of anger as a mediator between hindrance stressors and cyberloafing. The results showed hindrance stressors have a significant positive effect on anger, and anger also has a significant positive effect on cyberloafing. It also showed that anger partially mediated the relationship between hindrance stressors and cyberloafing.

Hence, this paper further extends the conceptual understanding of challenge-hindrance stressors framework to the domain of cyberloafing and supports the theoretical underpinning that different types of stressors do not influence certain behaviors in a similar way (Cavanaugh et al., 2000). Moreover, the present research also uncovered the existence of attentiveness and anger as mediators in the contextual impact of challenge and hindrance stressors on cyberloafing. Utilizing affective event theory (Weiss & Cropanzano, 1996) and conservation of resources theory (Hobfoll, 1989), the study extended the theoretical applications by showing that challenge stressors can lead to a sense of attentiveness or alertness, which can reduce the tendency to indulge in cyberloafing. This also supports our argument that employees may get motivated to acquire resources while attending to challenge stressors and staying attentive in the process for the purpose of achieving valued goals and objectives. In contrast, employees can indulge in cyberloafing to prevent loss of resources or conserve existing resources when they encounter hindrance stressors and in result, experience anger (Rodell & Judge, 2009; Xu & Wang, 2020; Zhou et al., 2021).

## **5.3 Trait Mindfulness, Weakening the Impact of Hindrance Stressors on Anger and Cyberloafing**

Finally, we examined the moderating role of mindfulness. We proposed that mindfulness as a non-invasive mechanism has the potential to moderate the relationship between hindrance stressors and anger and also can moderate the mediating effect of anger between hindrance stressors and cyberloafing. The index of moderated mediation showed full support to our hypotheses in this case. Past literature has explored various tenets of mindfulness in the context of hindrance stressors (Reina & Kudesia, 2020). For example, Wei, Zhu, & Chen (2020) uncovered the role of IT mindfulness as a moderator between hindrance stressors and the usage of enterprise systems innovatively. In the healthcare sector, Liu, Zhao, & Lu (2021) found that mindfulness of leaders reduces the nurses' hindrance stress. In our research, we have looked into the moderating effect of trait mindfulness in two ways; first, on the relationship between hindrance stressors and anger and second, on the indirect effect of

hindrance stressors on cyberloafing through anger. In both cases, we found that the strength of the relationships was stronger when trait mindfulness was low versus high.

#### **5.4 Practical Implication**

In the context of organizations, this study has multiple key takeaways. First, in the domain of cyberloafing, organizations must acknowledge that all stressors may not lead to cyberloafing at the first place. Understanding and differentiating the same will be the first step to leverage and control the effects of challenge and hindrance stressors. Second, organizations must increasingly work on the gradual removal of hindrance stressors from the work context (Xu & Wang, 2020; Zhou et al., 2021). This in turn can reduce the prevalent anger among the employees in organizations, which may also reduce the employees' propensity to cyberloaf during working hours. Third, organizations need to be careful while handling challenge stressors as well. Companies must ensure that the challenge stressors remain within the tolerable limit in order to extract the benefits drawn from it, otherwise it can potentially harm the performance of the employees and organization (Webster, Beehr, & Love, 2011). When the degree or severity of challenge stressors are optimized, employees will remain more engaged and attentive, resulting to lesser tendency to cyberloaf. Fourth, corporate bodies must also take a closer look on the benefit of various mindfulness related dimensions. In our research, we explored the effect of employees' trait mindfulness and how it can possibly reduce influence the inclination to cyberloaf, when impacted by hindrance stressors and anger. The results in our paper also gave support to our hypotheses. Past research has shown that trait mindfulness can strengthen the relationship in terms of how internet usage policy in the organization is perceived and the prevalence of automatic behavior in the domain of cyberloafing (Luo et al., 2022). Organizations must consider including various mindfulness related interventions to improve the state mindfulness of the individuals who are operating in the workplace, which can simultaneously improve their trait mindfulness as well (Kiken et al., 2015). Employees can also proactively include various mindfulness-meditative practices to increase not only their trait mindfulness but also to improve their overall well-being.

#### **6 Limitation and Future Research**

The present research work is not immune to few limitations. First, we collected data from 304 working individuals which makes it limited to a single-source data collection. Moreover, for this paper, we collected data pertaining to all constructs at a single point of time which makes it vulnerable to common-method bias. Although, we took all relevant measures during data collection (Soral, Arayankalam, & Pandey, 2020) and all statistical calculations showed no issues related to common method bias, future research can collect multi-source, time lagged data, along with other mediating emotions and constructs. Second, in this study, we have majorly relied on affective events theory and conservation of resources theory, along with Rodell & Judge's (2009) challenge-hindrance framework, future studies can also look into other theoretical underpinnings as well. Third, this paper has only investigated the following constructs; challenge stressors, hindrance stressors, attentiveness, anger, trait mindfulness and cyberloafing. Future studies can look into other constructs as well in this context to regulate cyberloafing behavior. For example, three out of seven dimensions of individual work ethic namely centrality of work, hard work and not wasting time (Meriac et al., 2013) can potentially act as moderators between the challenge-hindrance stressors and cyberloafing. Moreover, future research can also study the influence of contextual variables like peer cyberloafing

(Khansa et al., 2017) or employees' daily work duration using the internet on the relationship between challenge-hindrance stressors and cyberloafing.

## 7 Conclusion

This study revealed that challenge and hindrance stressors follow differential paths to cyberloafing through different emotions. Where challenge stressors take the route to cyberloafing with a negative indirect effect through attentiveness, hindrance stressors indirectly and positively effect cyberloafing through anger. The prevalence of cyberloafing is evident in the organization and it has reflected extensively in the human resource management, organizational behavior, psychology, human-computer interaction literature. It is imperative that the companies incorporate the required steps to reduce the hindrance stressors, and keep the challenge stressors within reasonable limit in order to regulate cyberloafing among its employees. Moreover, to regulate the impact of hindrance stressors on cyberloafing, organizations may explore improving the employees' trait mindfulness by incorporating various mindfulness-based interventions on a regular basis. Lastly, contrary to our expectation, as challenge stressors did not show a significant negative direct relationship with cyberloafing, future research may look into other relevant attitudinal, motivational and emotional variables in this context to examine this issue.

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