



Full Length Article

Cyberloafing as a coping mechanism: Dealing with workplace boredom

Shani Pindek^{a,*}, Alexandra Krajcevska^b, Paul E. Spector^b^a University of Haifa, Abba Khoushy Ave 199, Haifa, 3498838, Israel^b University of South Florida, USA

ARTICLE INFO

Article history:

Received 24 January 2018

Received in revised form

17 April 2018

Accepted 20 April 2018

Available online 21 April 2018

Keywords:

Cyberloafing

Workplace boredom

Work underload

ABSTRACT

Workplace cyberloafing (personal use of the internet during working hours) has been recognized as a form of counterproductive work behavior (CWB) that can harm organizations. In this study, we take an opposing view and argue that cyberloafing can serve a potentially positive function in that it can help employees cope with workplace boredom. We describe a study of the cyberloafing behavior and the experienced underload and boredom of 463 university employees with diverse occupations. Results supported the direct relationships between underload and boredom, and boredom and cyberloafing. The indirect underload-boredom-cyberloafing relationship was also significant. Underload was not correlated with CWB, and the boredom-cyberloafing relationship was significantly stronger than the boredom-CWB relationship. Moreover, comparing competing models supported the suggested direction of the underload-boredom-cyberloafing process, as alternative directions did not fit the data. Together, these findings support the conceptualization of cyberloafing as a boredom coping mechanism rather than a form of CWB and highlight the importance of investigating the impact of underload and boredom on employee behaviors.

© 2018 Elsevier Ltd. All rights reserved.

1. Introduction

Boredom and cyberloafing at work are two increasingly prevalent topics of interest in organizations, and in research in recent years. On the organizational side, there is a need to better understand cyberloafing and its antecedents, as there is a commonly held notion that cyberloafing is counterproductive, deviates from organizational norms, and can lead to costs for the organization (Askew, 2012; Askew et al., 2014; Everton, Mastrangelo, & Jolton, 2005). Similarly, bored employees are perceived as damaging to the organization (e.g., Bruursema, Kessler, & Spector, 2011; Harju, Hakonen, & Schaufeli, 2014). On the employee side, boredom at work is an important aspect of the experience of work, detracting from employees' well-being (e.g., van Hooff & van Hooff, 2014, 2016) and cyberloafing may simply be a coping response to boredom. In the current study, we take the employee perspective and examine how boredom at work, resulting from low levels of workload, can lead to cyberloafing as a means of adaptive coping.

1.1. Cyberloafing in the workplace

Cyberloafing is defined as the personal or recreational use of electronic devices while an employee is supposed to be performing job tasks (Lim & Teo, 2005; Lim, 2002). Within the last few decades, internet usage within organizations has become a necessity. However, access to the internet at work provides an easy alternative (e.g., cyberloafing) that can compete with employees' work tasks.

Cyberloafing can be considered as a type of counterproductive work behavior (CWB), which is behavior that harms organizations and/or organization stakeholders (Spector et al., 2006). CWB encompasses several dimensions: abuse (e.g., verbally mistreating someone at work), production deviance (e.g., purposefully working slowly or incorrectly), sabotage (e.g., purposefully wasting materials of damaging equipment), theft (e.g., reporting more hours than actually worked, or taking supplies home without permission), and withdrawal (taking longer breaks or coming in late). Cyberloafing is conceptually closest to both production deviance, which is doing work incorrectly or poorly (Lim, 2002), and withdrawal, which is working less time than required (Askew, 2012).

Studies examining situational predictors of cyberloafing have

* Corresponding author. University of Haifa, Department of Human Services, Abba Khoushy Ave 199, Haifa, 3498838. Israel.

E-mail addresses: pshani@gmail.com, shanipindek@mail.usf.edu (S. Pindek).

conceptualized it as a retaliation against injustice (Lim, 2002), a response to stressors (Henle & Blanchard, 2008), or as a result of depleted self-regulatory resources (Wagner, Barnes, Lim, & Ferris, 2012). Studies have also found that internet access and policies or norms against cyberloafing predicted the level of cyberloafing (Andreassen, Torsheim, & Pallesen, 2014; Blanchard & Henle, 2008). Common to these studies is the assumption that cyberloafing is a negative or counterproductive behavior, in line with its conceptualization as a form of CWB.

In this study we take a different approach, one by which cyberloafing can be a coping mechanism for employees who are experiencing boredom on the job. For example, lower levels of job involvement and intrinsic motivation are associated with higher rates of cyberloafing behaviors (Liberman, Seidman, McKenna, & Buffardi, 2011), indicating that cyberloafing might be filling up a void in the work experience. This coping perspective is in line with previous findings that cyberloafing can be positively related with employees' emotional well-being (Lim & Chen, 2012). Specifically, we examine the relationship between workload, boredom, and cyberloafing. Few studies have examined such relationships; although some (Andreassen et al., 2014; Henle & Blanchard, 2008) have found that quantitative work demands do negatively relate to cyberloafing, and that low work demands are associated with greater workplace boredom (Metin, Taris, & Peeters, 2016).

1.2. Work underload

Workload, the perceived amount of work in terms of difficulty, volume and pace (Bowling & Kirkendall, 2012; Spector & Jex, 1998), is typically studied from a stress perspective in terms of workload that is too great (i.e., work overload) and its association with negative outcomes for the employee and the organization (Bowling, Alarcon, Bragg, & Hartman, 2015). Work underload, having a relatively low workload, is studied as a potential stressor far less often. To demonstrate, a recent meta-analysis of workload (Bowling et al., 2015) found a host of correlates and consequences for workload that seem to be describing work overload more than underload: The strongest (positive) correlations in this analysis were with role conflict, work-family conflict, and emotional exhaustion – all related theoretically with the high end of workload.

Outcomes that are specifically relevant for underload have largely been neglected. The few studies that examined underload have often examined the curvilinear or U-shaped relationship with outcomes. For example, under some conditions, job demands (i.e., workload) have an inverted U-shaped relationship with job performance and satisfaction (Janssen, 2001). While not measuring workload directly, Xie and Johns (1995) found that job scope had a U-shaped relationship with emotional exhaustion, and general job stress was found to have an inverted U-shaped relationship with organizational commitment and job performance (Chen, Silverthorne, & Hung, 2006; Leung, Chan, & Olomolaiye, 2008). These findings support the idea that there is an optimal level of activation (Gardner, 1986), and when activation levels are too low or too high, employee's well-being and performance suffer. Workload can be the driver of activation level for employees. At low levels of workload, when there is little to do, activation is low. As workload increases, so does activation, but at high levels of workload the optimal levels of activation can be exceeded. Employees may then engage in behaviors such as cyberloafing or counterproductive work behaviors (e.g., withdrawal).

One study in particular focused on the lower end of workload (Shultz, Wang, & Olson, 2010) and found that underload had negative effects on most physical symptoms, fatigue, sleeping problems, and anxiety. To advance this line of research, we believe it

is appropriate to test other strain variables that are more pertinent to the experience of underload from a theoretical perspective. Specifically, boredom is extremely relevant to work underload (e.g., van Wyk, de Beer, Pienaar, & Schaufeli, 2016). Workplace boredom has been found to predict depressed mood at the end of the workday in a diary study (van Hooff & van Hooff, 2016) and so it is possible that boredom is a more proximal outcome of underload, mediating the relationship between underload and other outcomes.

1.3. Workplace boredom

Workplace boredom is an important aspect of the work experience that has not received sufficient attention until recently (Mael & Jex, 2015). It is, however, a prevalent work experience in many industries, and is associated with greater rates of employees' turnover, poorer self-reported health and increased stress, and reduced task performance (e.g., Cummings, Gao, & Thornburg, 2016; Harju et al., 2014).

Boredom is “an unpleasant state of relatively low arousal and dissatisfaction, which is attributed to an inadequately stimulating work situation” (Schaufeli & Salanova, 2014, p. 298). It is often the result of workplace characteristics (e.g., monotony; Loukidou, Loan-Clarke, & Daniels, 2009), but these work elements are correlates of workplace boredom rather than a part of the workplace boredom construct. Workplace boredom has the propensity to make employees feel unchallenged and deprived of meaning at work (van Hooff & van Hooff, 2016), and is most often defined as an emotional strain (i.e., a decrement to well-being resulting from stressful working condition).

1.4. Cyberloafing as boredom coping

Cyberloafing is a diversion of the employee's attention from their work tasks to personal or recreational matters. In that, cyberloafing can constitute a boredom coping activity as it re-structures the boring situation at work to include more interesting (albeit personal) components. In a preliminary study, Game (2007) found that employees use a variety of ways of coping with boredom on the job, and those can be categorized into engagement coping (i.e., trying to make the work more interesting) or disengagement coping (i.e., behaviors that avoid the task). Similar to disengagement coping, workplace boredom was related to distractions as a form of a temporary relief strategy (van der Heijden, Schepers, & Nijssen, 2012). Cyberloafing falls under disengagement or distraction coping, though this behavior is probably less harmful to the organization than other forms of disengaged coping or other types of CWB. Indeed, the use of personal communication technology at work (i.e., cyberloafing) is the result of a self-reactive incentive to relieve boredom (Eastin, Glynn, & Griffiths, 2007), and certain cyberloafing activities have a positive effect on employees' emotions (Lim & Chen, 2012).

2. Hypotheses and contribution

We argue that work underload results in boredom. Employees can engage in cyberloafing as a coping response to that boredom. These arguments are the basis for the following hypotheses:

H1. Work underload is related to cyberloafing

H2. Boredom is related to cyberloafing

H3. Boredom mediates the work underload-cyberloafing relationship

To further disentangle cyberloafing from CWB, and in line with

previous meta-analytic findings, we see no theoretical reason to link work underload with CWB. Work underload is not expected to elicit anger or retaliatory behavior that can be considered CWB. Rather, underload resulting in boredom can further lead to cyberloafing as a means of coping, but not to retaliatory CWB. Consequently, we can expect the relationship between boredom and cyberloafing to be stronger than the relationship between boredom and CWB, which leads to the following hypothesis:

H4. The boredom-cyberloafing relationship is stronger than the boredom-CWB relationship

Our main contributions are threefold: First, our study contributes to our very limited knowledge of the lower end of workload (i.e., underload) and its effects on employee boredom and behavior; Second, we contribute to a growing body of research on cyberloafing, and our study helps to distinguish it from CWB and conceptualize it as a form of coping; Third, we create a more concise boredom scale that does not overlap with other constructs. Replicating past results with a scale that disentangles the constructs provides additional support for those past findings.

3. Methods

3.1. Pretest

As a first step in our investigation, we created a more concise boredom scale. Most workplace boredom research has used one of two scales: The Dutch Boredom Scale (DUBS; Reijseger et al., 2013), and Lee's Job Boredom Scale (1986). Lee's Job Boredom scale overlaps with other constructs, such as job satisfaction ("Do you like the work you do?"), monotony ("Does monotony describe your job?"), and negative emotions ("Do you become irritable on the job?"). The DUBS (Reijseger et al., 2013) has some inconsistencies in its factor structure and the scale has an item that is measuring work underload ("At my work, there is not so much to do"), which makes it unsuitable when examining underload as a predictor. These problems with preexisting scales have been noted in previous studies, and ad-hoc boredom scales are sometimes used (van Hooff & van Hooff, 2016). Therefore, our pretest was aimed at creating a more concise Boredom as Strain (BAS) scale, which does not overlap with other stressors or strains.

The sample included 189 full time non-instructional support employees from a large public university in the Southeastern United States who volunteered to participate in an anonymous online survey. Their mean age was 42 (SD = 12) and 72% were female. This sample is appropriate because the great variety in occupations (e.g., administrative worker, custodial worker, psychologist, web designer, postal worker, attorney etc.) allows for sufficient variance in our variables of interest, i.e., work underload and boredom.

This sample received the two boredom measures on a five-point scale ranging from "never" to "always". Lee's Job Boredom Scale is composed of 17 items. A sample item is, "Do you often get bored with your work?" The alpha reliability was 0.87. The DUBS has 8 self-reported items such as, "During work time I daydream", and "At work, time goes by very slowly". The alpha reliability for the DUBS was 0.87.

We included the 25 items (combined alpha of 0.94) in a single Exploratory Factor Analysis (EFA) with Common Factor extraction and Promax rotation, which assumes factors are not orthogonal. Using the Scree Plot criterion, we extracted three factors, shown in Table 1. Specifically, the three factors were named boredom (e.g., "I feel bored at my job"), monotony (e.g., "Does the job seem repetitive?"), and affective strain ("Do you get mentally sluggish during the day?").

Next, in order to have 4–6 final items, we eliminated repeating items and items that loaded 0.6 or lower on their factor. We also eliminated the item "At my work, there is not so much to do", which overlaps with workload. We retained 4 unique items that loaded onto the same factor that clearly reflected boredom (marked with a superscripted "a" in Table 1), with an alpha of 0.88, which is satisfactory. Therefore, these 4 items constitute the BAS scale used in the main part of the study.

3.2. Participants and procedures

Participants were 463 full-time non-instructional support employees at a public university (a different university than the one used in the pretest) in the Southeastern United States. The average age of participants was 44.9 years old (SD = 12.4), 73% were women, and worked an average of 43.2 h a week (SD = 7.0). This sample is again very suited for this study due to the great variety in jobs in our sample. Questionnaires were anonymous.

3.3. Measures

The items from all measures used a five-point scale ranging from "never" to "always", unless otherwise stated.

Boredom. We included the two boredom scales used in the pretest. The alpha reliabilities were 0.93 for the Lee (1986) Scale, and 0.88 for the DUBS (Reijseger et al., 2013). This allowed us to conduct a Confirmatory Factor Analysis (CFA) using the structure found in the pretest, as well as report results from the BAS, which is a subset of items from these scales. The BAS reliability in this sample was 0.88.

Cyberloafing. We used the Lim and Teo (2005), 12-item cyberloafing scale that measures the frequency with which individuals use the internet recreationally at work. It was measured using a 6-point scale ranging from "never" to "constantly". The alpha reliability coefficient was 0.86.

Work underload. The Spector and Jex (1998) Quantitative Workload Inventory (QWI) 5-item scale was used to measure work underload. A sample item is, "How often is there a great deal to be done?" It was scored on a 5-point scale ranging from "less than once per month or never" to "several times per day". A low score on this scale indicates work underload. The alpha reliability coefficient was 0.88.

Counterproductive Work Behavior (CWB). The 10-item Short Version of the Counterproductive Work Behavior Checklist was used (Spector, Bauer, & Fox, 2010). A sample item is "How often have you purposely wasted your employer's materials/supplies?" Responses were given on a five-point scale ranging from "never" to "every day. Internal consistency was not calculated because the scale is formative (i.e., items are not interchangeable).

4. Results

As a first step, we used Mplus software to replicate the results of the EFA from the pretest using a Maximum Likelihood CFA on our main sample. We included the 11 items selected in the pretest (items appearing in boldface in Table 1), loading each item on its factor and allowing the factors to covary. The fit statistics for the three-factor solution was good ($\chi^2_{(41)} = 97.36$, $p < .001$, RMSEA = 0.06, CFI = 0.98, TLI = 0.97, SRMR = 0.03).

Next, we tested our hypothesized model. Descriptive statistics and correlations between the variables are shown in Table 2. We also provide frequency tables for the individual cyberloafing and CWB behaviors in Table 3. Examining each of the items revealed there were a few items that fewer people reported "never" engaging in, making these the behaviors reported by the most

Table 1
Pretest results of exploratory factor analysis of boredom items.

| | Factor | | |
|--|------------|----------|------------------|
| | Boredom | Monotony | Affective strain |
| At work, time goes by very slowly ^a | .92 | -.16 | -.06 |
| At my work, there is not so much to do | .90 | -.05 | -.19 |
| I feel bored at my job ^a | .76 | .20 | -.09 |
| Are there long periods of boredom on the job? ^a | .74 | .20 | .01 |
| Does the time seem to go by slowly? | .74 | .06 | .09 |
| At work, I spend my time aimlessly ^a | .74 | -.16 | .21 |
| Does the job go by too slowly? | .59 | .31 | .03 |
| During work time I daydream | .59 | -.14 | .37 |
| Do you get bored with your work? | .49 | .33 | .09 |
| I tend to do other things during my work | .44 | -.13 | .36 |
| Is your work pretty much the same day after day? | .42 | .35 | -.09 |
| At my job, I feel restless | .40 | .18 | .26 |
| Is your work tedious? | -.25 | .76 | .12 |
| Does the job seem repetitive? | .19 | .68 | -.05 |
| Do you like the work you do? | .02 | -.67 | .00 |
| Do you find the job dull? | .25 | .64 | .00 |
| Does monotony describe your job? | .39 | .58 | -.12 |
| If the pay were the same, would you like to change from one type of work to another from time to time? | .04 | .43 | .11 |
| It seems as if my working day never ends | -.05 | .37 | .28 |
| Do you get mentally sluggish during the day? | .15 | -.11 | .74 |
| Do you get drowsy on the job? | .22 | -.13 | .72 |
| Do you get tired on the job? | -.08 | .15 | .63 |
| Do you become irritable on the job? | -.33 | .33 | .60 |
| Do you get apathetic on the job? | -.09 | .40 | .46 |
| During the day, do you think about doing another task? | .06 | .27 | .37 |

Note.
^a indicates item is included in the Boredom as Strain (BAS) scale. Boldface loadings indicate the item was included in the Sample 2 CFA.

Table 2
Main study descriptive statistics and correlations between variables.

| Variable | M | SD | 1 | 2 | 3 | 4 |
|----------------|-------|-------|--------|--------|--------|--------|
| 1 Workload | 3.26 | 1.07 | (.88) | | | |
| 2 Boredom | 2.29 | 0.77 | -.50** | (.88) | | |
| 3 Cyberloafing | 2.24 | 0.80 | -.27** | .48** | (.86) | |
| 4 CWB | 1.34 | 0.33 | -.02 | .27** | .38** | (.86) |
| 5 Age | 44.91 | 12.42 | .04 | -.20** | -.25** | -.20** |

Note. N = 442. **p < .01. CWB is counterproductive work behavior. Reliabilities for the reflective scale are provided in parentheses on the diagonal.

people. These include visiting non-work related websites and using personal email as the most common cyberloafing behaviors, and complaining about insignificant things at work and ignoring someone at work are the most common CWBs.

Model testing was conducted using the robust maximum likelihood estimation (MLR) in the Mplus 7 program (Muthén & Muthén, 1998–2012). We compared our hypothesized model to two other competing models, whereby the same variables are used, but the role of boredom is switched from mediator to predictor or outcome. This is in line with West, Taylor, and Wu's (2012) recommendations to avoid using specific cutoff standards for accepting or rejecting a hypothesized model. Instead, they recommend using fit statistics for comparison of competing models. Fit statistics of the three models are presented in Table 4. Note that the hypothesized model has a much better fit than comparison models 1 and 2. The fit for the hypothesized model ($\chi^2_{(2)} = 12.36, p < .01, RMSEA = 0.11, CFI = 0.97, TLI = 0.90, SRMR = 0.03$) falls mostly

within accepted standards (Hu & Bentler, 1999; MacCallum & Austin, 2000), with the exception of a higher RMSEA than desired. Therefore, the hypothesized model is supported, and the path coefficients are presented in Fig. 1.

Hypothesis 1 received support as the correlation between work underload and cyberloafing was significant ($r = -0.27, p < .001$). Hypothesis 2 received support, as both the correlation between boredom and cyberloafing ($r = 0.48, p < .001$) and the corresponding path in the model ($\gamma = 0.48, p < .001$) were significant. Hypothesis 3 was also supported, as the indirect path between workload and cyberloafing via boredom was significant ($\gamma = -0.17, p < .001$). As for hypothesis 4, the boredom-cyberloafing relationship ($r = 0.48$) is significantly stronger ($Z = 4.43, p < .001$) than the boredom-CWB relationship ($r = 0.27$). We can also see a larger path coefficient ($\gamma = 0.48$) with cyberloafing as compared with CWB ($\gamma = 0.11$). Adding age as a control variable in the model did not change the pattern of the results.

5. Discussion

The current study examined how boredom at work, resulting from work underload, can lead to cyberloafing as a means of adaptive coping. Our hypotheses were supported, adding to the limited but growing body of literature on the negative effects of work underload on employee well-being (e.g., Shultz et al., 2010), and to a similarly underexplored conceptualization of cyberloafing as a boredom-coping mechanism (exceptions include Lim & Chen, 2012; van der Heijden et al., 2012) rather than as a CWB.

Boredom has been linked to various forms of CWB (Bruursema et al., 2011; Skowronski, 2012). In this context, CWBs are thought to be interest-enhancing behaviors, or a boredom coping strategy. Our study replicates this finding of a correlation between boredom and CWB. However, the correlation between boredom and cyberloafing was significantly stronger. This may point to cyberloafing being a preferred boredom coping strategy over CWB for most employees. In other words, when an employee is experiencing boredom, it is much more likely that this employee will engage in cyberloafing than in CWB as a response.

One additional contribution of the current study is the use of a boredom scale that does not overlap with the other variables of interest in the study (the BAS scale). Replicating past findings on correlates of boredom (e.g., Metin et al., 2016) with this scale eliminated alternative explanations for those past findings. Further, it is our hope that this concise boredom scale will enable researchers to include it in more studies of the work experience, and in that way promote our understanding of this prevalent strain.

The current study has implications for practitioners as well. For example, cyberloafing can be used as an indication of boredom on the job, and training efforts can be made to channel employees' efforts into more productive outlets such as job crafting or enriching, or into organizational citizenship behaviors (OCB). In support of this idea, previous research (Spector & Fox, 2010) proposed that understimulation, specifically workplace boredom, can result in extra-task active behaviors as a means of coping, and these behaviors can be both positive (OCB) or negative (CWB). Training that promotes OCB or job enrichment as a coping response to boredom would benefit the organization.

5.1. Limitations and future directions

Though the competing models provide some evidence as to the direction of the process, our design is cross-sectional. Alternative study designs such as diary designs or the use of qualitative techniques may provide additional insight and a more direct test for our proposed processes. In addition, like in most other studies, the

Table 3
Cyberloafing and BWB behavior frequency.

| Cyberloafing | Frequency | | | | | |
|---------------------------------------|-----------|---------------------|--------------------|------------|-------------------|------------|
| | Never | A few times a month | A few times a week | Once a day | A few times a day | Constantly |
| Visit non-job related Websites | 8.2 | 25.6 | 15.8 | 14.9 | 30.9 | 4.7 |
| Visit general news Websites | 20.4 | 25.1 | 12.6 | 20.0 | 20.2 | 1.8 |
| Visit entertainment-related Websites | 47.5 | 22.8 | 11.2 | 8.0 | 8.9 | 1.6 |
| Visit sports related Websites | 75.8 | 13.1 | 5.3 | 2.4 | 2.4 | 0.9 |
| Instant messaging/chat online | 63.9 | 11.3 | 5.5 | 4.9 | 10.0 | 4.4 |
| Download non-work related information | 41.1 | 43.6 | 9.6 | 2.2 | 3.1 | 0.4 |
| Look for employment | 67.1 | 25.8 | 4.4 | 1.3 | 0.0 | 1.3 |
| Shop online | 43.8 | 44.7 | 8.2 | 1.6 | 1.6 | 0.2 |
| Play online games | 88.9 | 5.6 | 2.7 | 1.3 | 1.6 | 0.0 |
| Check non-work related e-mail | 18.2 | 24.9 | 14.0 | 17.6 | 21.6 | 3.8 |
| Send non-work related e-mail | 19.5 | 35.5 | 19.7 | 11.8 | 11.3 | 2.2 |
| Receive non-work related e-mail | 19.3 | 32.8 | 16.6 | 10.6 | 16.2 | 4.4 |

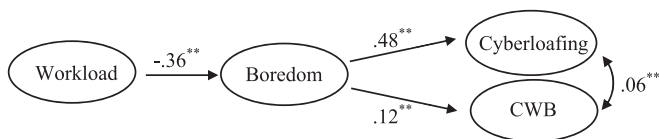
| Frequency | Frequency | | | | |
|---|-----------|---------------|-----------------------|----------------------|-----------|
| | Never | Once or twice | Once or twice a month | Once or twice a week | Every day |
| CWB | | | | | |
| Purposely wasted your employer's materials/supplies | 91.9 | 7.2 | 0.7 | 0.2 | 0.0 |
| Complained about insignificant things at work | 39.0 | 42.9 | 11.8 | 5.0 | 1.4 |
| Told people outside the job what a lousy place you work for | 76.0 | 16.1 | 3.8 | 2.3 | 1.8 |
| Came to work late without permission | 66.2 | 19.5 | 7.9 | 5 | 1.4 |
| Stayed home from work and said you were sick when you weren't | 70.4 | 27.1 | 2.5 | 0.0 | 0.0 |
| Insulted someone about their job performance | 89.1 | 9.5 | 0.9 | 0.5 | 0.0 |
| Made fun of someone's personal life | 88.9 | 10.0 | 0.7 | 0.2 | 0.2 |
| Ignored someone at work | 59.4 | 29.7 | 6.1 | 2.9 | 1.8 |
| Started an argument with someone at work | 88.0 | 10.4 | 1.4 | 0.2 | 0.0 |
| Insulted or made fun of someone at work | 83.7 | 13.3 | 1.8 | 0.7 | 0.5 |

Table 4
Fit statistics for competing models.

| The model | Diagram | Fit Statistics | | | | |
|--------------------|---------|------------------------------|-------|-----|----------------|------|
| | | χ^2 | RMSEA | CFI | TLI | SRMR |
| Hypothesized model | | $\chi^2_{(2)} = 12.89^{**}$ | .11 | .97 | .90 | .03 |
| Comparison model 1 | | $\chi^2_{(2)} = 174.97^{**}$ | .44 | .46 | 0 ^a | .15 |
| Comparison model 2 | | $\chi^2_{(2)} = 93.98^{**}$ | .32 | .71 | .13 | .12 |

Note. ^{**} $p < .001$.

^a Values lower than zero were constrained to be zero.



Note for Figure 1. ^{**} $p < .001$, CWB is counterproductive work behavior.

Fig. 1. The hypothesized model. ^{**} $p < .001$, CWB is counterproductive work behavior.

limited number of variables in the model provides only a partial picture and there are other relevant variables that can be explored. Such variables include job satisfaction or perceived injustice, as they potentially relate differentially with CWB and cyberloafing.

Furthermore, while our sample included employees in diverse occupations, they are not a nationally representative sample and as such we are more limited in terms of generalizability. In addition, our study did not consider elements in the workplace that are job dependent and may limit the ability to cyberloaf, such as internet availability or regulations/software that reduce the use of electronic devices for personal purposes. Future studies could also consider

individual differences, as previous studies (e.g., [Everton et al., 2005](#); [Wagner et al., 2012](#)) have suggested cyberloafing is correlated with some personality traits.

Finally, the current study is limited in its scope and does not explore different reasons for underload and how those relate to the consequences of the phenomenon. Future studies can explore underload with its predictors, as well as uncover possible benefits ensuing from underload (e.g., innovation, organizational citizenship behaviors, and job crafting).

5.2. Conclusion

The current study highlights the potential consequences and coping with work underload. Workplace boredom is an important negative well-being consequence of underload, and our study conceptualizes cyberloafing as a boredom-coping mechanism rather than a counterproductive work behavior.

Author disclosure statements

All authors of this paper have no commercial associations that

might create a conflict of interest or competing interest in connection with this manuscript.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

- Andreassen, C. S., Torsheim, T., & Pallesen, S. (2014). Predictors of use of social network sites at work - a specific type of cyberloafing. *Journal of Computer-mediated Communication*, 19(4), 906–921. <https://doi.org/10.1111/jcc4.12085>.
- Askew, K. (2012). *The relationship between cyberloafing and task performance and an examination of the theory of planned behavior as a model of cyberloafing*. (Ph.D. Dissertation). University of South Florida. Retrieved from <https://search.proquest.com/docview/1034901292?accountid=14745>.
- Askew, K., Buckner, J. E., Taing, M. U., Iliie, A., Bauer, J. A., & Coovert, M. D. (2014). Explaining cyberloafing: The role of the theory of planned behavior. *Computers in Human Behavior*, 36, 510–519. <https://doi.org/10.1016/j.chb.2014.04.006>.
- Blanchard, A. L., & Henle, C. A. (2008). Correlates of different forms of cyberloafing: The role of norms and external locus of control. *Computers in Human Behavior*, 24(3), 1067–1084. <https://doi.org/10.1016/j.chb.2007.03.008>.
- Bowling, N. A., Alarcon, G. M., Bragg, C. B., & Hartman, M. J. (2015). A meta-analytic examination of the potential correlates and consequences of workload. *Work & Stress*, 29(2), 95–113. <https://doi.org/10.1080/02678373.2015.1033037>.
- Bowling, N. A., & Kirkendall, C. (2012). Workload: A review of causes, consequences, and potential interventions. In J. Houdmont, S. Leka, & R. Sinclair (Eds.), *Contemporary occupational health psychology: Global perspectives on research and practice* (Vol. 2, pp. 221–238). Chichester: Wiley-Blackwell.
- Bruursema, K., Kessler, S. R., & Spector, P. E. (2011). Bored employees misbehaving: The relationship between boredom and counterproductive work behaviour. *Work & Stress*, 25(2), 93–107. <https://doi.org/10.1080/02678373.2011.596670>.
- Chen, J. C., Silverthorne, C., & Hung, J. Y. (2006). Organization communication, job stress, organizational commitment, and job performance of accounting professionals in Taiwan and America. *The Leadership & Organization Development Journal*, 27(4), 242–249. <https://doi.org/10.1108/01437730610666000>.
- Cummings, M. L., Gao, F., & Thornburg, K. M. (2016). Boredom in the workplace. *Human Factors*, 58(2), 279–300. <https://doi.org/10.1177/0018720815609503>.
- Eastin, M. S., Glynn, C. J., & Griffiths, R. P. (2007). Psychology of communication technology use in the workplace. *CyberPsychology and Behavior*, 10(3), 436–443. <https://doi.org/10.1089/cpb.2006.9935>.
- Everton, W. J., Mastrangelo, P. M., & Jolton, J. A. (2005). Personality correlates of employees' personal use of work computers. *CyberPsychology and Behavior*, 8(2), 143–153. <https://doi.org/10.1089/cpb.2005.8.143>.
- Game, A. M. (2007). Workplace boredom coping: Health, safety, and HR implications. *Personnel Review*, 36(5), 701–721. <https://doi.org/10.1108/00483480710774007>.
- Gardner, D. G. (1986). Activation theory and task design: An empirical test of several new predictions. *Journal of Applied Psychology*, 71(3), 411–418. <https://doi.org/10.1037/0021-9010.71.3.411>.
- Harju, L., Hakanen, J. J., & Schaufeli, W. B. (2014). Job boredom and its correlates in 87 Finnish organizations. *Journal of Occupational and Environmental Medicine*, 56(9), 911–918. <https://doi.org/10.1097/jom.0000000000000248>.
- van der Heijden, G. A. H., Schepers, J. J. L., & Nijssen, E. J. (2012). Understanding workplace boredom among white collar employees: Temporary reactions and individual differences. *European Journal of Work & Organizational Psychology*, 21(3), 349–375. <https://doi.org/10.1080/1359432X.2011.578824>.
- Henle, C. A., & Blanchard, A. L. (2008). The interaction of work stressors and organizational sanctions on cyberloafing. *Journal of Managerial Issues*, 20(3), 383–400.
- van Hooff, M. L. M., & van Hooff, E. A. J. (2014). Boredom at work: Proximal and distal consequences of affective work-related boredom. *Journal of Occupational Health Psychology*, 19(3), 348–359. <https://doi.org/10.1037/a0036821>.
- van Hooff, M. L. M., & van Hooff, E. A. J. (2016). Work-related boredom and depressed mood from a daily perspective: The moderating roles of work centrality and need satisfaction. *Work & Stress*, 30(3), 209–227. <https://doi.org/10.1080/02678373.2016.1206151>.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>.
- Janssen, O. (2001). Fairness perceptions as a moderator in the curvilinear relationships between job demands, and job performance and job satisfaction. *Academy of Management Journal*, 44(5), 1039–1050. <https://doi.org/10.2307/3069447>.
- Lee, T. W. (1986). Toward the development and validation of a measure of job boredom. *Manhattan College Journal of Business*, 15(1), 22–28.
- Leung, M., Chan, Y., & Olomolaiye, P. (2008). Impact of stress on the performance of construction project managers. *Journal of Construction Engineering and Management*, 134(8), 644–652. [https://doi.org/10.1061/\(ASCE\)0733-9364\(2008\)134:8\(644\)](https://doi.org/10.1061/(ASCE)0733-9364(2008)134:8(644)).
- Lieberman, B., Seidman, G., McKenna, K. Y. A., & Buffardi, L. E. (2011). Employee job attitudes and organizational characteristics as predictors of cyberloafing. *Computers in Human Behavior*, 27(6), 2192–2199. <https://doi.org/10.1016/j.chb.2011.06.015>.
- Lim, V. K. G. (2002). The it way of loafing on the job: Cyberloafing, neutralizing and organizational justice. *Journal of Organizational Behavior*, 23(5), 675–694. <https://doi.org/10.1002/job.161>.
- Lim, V. K. G., & Chen, D. J. Q. (2012). Cyberloafing at the workplace: Gain or drain on work? *Behaviour & Information Technology*, 31(4), 343–353. <https://doi.org/10.1080/01449290903353054>.
- Lim, V. K. G., & Teo, T. S. H. (2005). Prevalence, perceived seriousness, justification and regulation of cyberloafing in Singapore. *Information & Management*, 42(8), 1081–1093. <https://doi.org/10.1016/j.im.2004.12.002>.
- Loukidou, L., Loan-Clarke, J., & Daniels, K. (2009). Boredom in the workplace: More than monotonous tasks. *International Journal of Management Reviews*, 11(4), 381–405. <https://doi.org/10.1111/j.1468-2370.2009.00267.x>.
- MacCallum, R. C., & Austin, J. T. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology*, 51(1), 201–226. <https://doi.org/10.1146/annurev.psych.51.1.201>.
- Mael, F., & Jex, S. (2015). Workplace boredom: An integrative model of traditional and contemporary approaches. *Group & Organization Management*, 40(2), 131–159. <https://doi.org/10.1177/105960115575148>.
- Metin, U. B., Taris, T. W., & Peeters, M. C. W. (2016). Measuring procrastination at work and its associated workplace aspects. *Personality and Individual Differences*, 101, 254–263. <https://doi.org/10.1016/j.paid.2016.06.006>.
- Muthén, L. K., & Muthén, B. O. (1998–2012). *Mplus User's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.
- Reijseger, G., Schaufeli, W. B., Peeters, M. C. W., Taris, T. W., van Beek, I., & Ouweneel, E. (2013). Watching the paint dry at work: Psychometric examination of the Dutch boredom scale. *Anxiety, Stress & Coping*, 26(5), 508–525. <https://doi.org/10.1080/10615806.2012.720676>.
- Schaufeli, W. B., & Salanova, M. (2014). Burnout, boredom and engagement in the workplace. In M. C. W. Peeters, J. d. Jonge, & T. W. Taris (Eds.), *An introduction to contemporary work psychology*. John Wiley & Sons, Ltd.
- Shultz, K. S., Wang, M., & Olson, D. A. (2010). Role overload and underload in relation to occupational stress and health. *Stress and Health*, 26(2), 99–111. <https://doi.org/10.1002/smi.1268>.
- Skowronski, M. (2012). When the bored behave badly (or exceptionally). *Personnel Review*, 41(2), 143–159. <https://doi.org/10.1108/00483481211200006>.
- Spector, P. E., Bauer, J. A., & Fox, S. (2010). Measurement artifacts in the assessment of counterproductive work behavior and organizational citizenship behavior: Do we know what we think we know? *Journal of Applied Psychology*, 95(4), 781–790. <https://doi.org/10.1037/a0019477>.
- Spector, P. E., & Fox, S. (2010). Counterproductive work behavior and organisational citizenship behavior: Are they opposite forms of active behavior? *Applied Psychology*, 59(1), 21–39. <https://doi.org/10.1111/j.1464-0597.2009.00414.x>.
- Spector, P. E., Fox, S., Penney, L. M., Bruursema, K., Goh, A., & Kessler, S. (2006). The dimensionality of counterproductivity: Are all counterproductive behaviors created equal? *Journal of Vocational Behavior*, 68(3), 446–460. <https://doi.org/10.1016/j.jvb.2005.10.005>.
- Spector, P. E., & Jex, S. M. (1998). Development of four self-report measures of job stressors and strain: Interpersonal conflict at work scale, organizational constraints scale, quantitative workload inventory, and physical symptoms inventory. *Journal of Occupational Health Psychology*, 3(4), 356–367. <https://doi.org/10.1037/1076-8998.3.4.356>.
- Wagner, D. T., Barnes, C. M., Lim, V. K. G., & Ferris, D. L. (2012). Lost sleep and cyberloafing: Evidence from the laboratory and a daylight saving time quasi-experiment. *Journal of Applied Psychology*, 97(5), 1068–1076. <https://doi.org/10.1037/a0027557>.
- West, S. G., Taylor, A. B., & Wu, W. (2012). Model fit and model selection in structural equation modeling. In R. H. Hoyle (Ed.), *Handbook of structural equation modeling* (pp. 209–231). New York: Guilford Press.
- van Wyk, S. M., de Beer, L. T., Pienaar, J., & Schaufeli, W. B. (2016). The psychometric properties of a workplace boredom scale (DUBS) within the South African context. *SA Journal of Industrial Psychology*, 42, 1–10. <https://doi.org/10.4102/sajip.v42i1.1326>.
- Xie, J. L., & Johns, G. (1995). Job scope and Stress: Can job scope Be too high? *Academy of Management Journal*, 38(5), 1288–1309. <https://doi.org/10.2307/256858>.