An island of sanity during COVID-19 pandemic: Does pet attachment support buffer employees’ stress due to job insecurity?

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Abstract
Drawing on the transactional theory of stress, the current study investigates whether employee job insecurity triggers employee behavioral strain reactions (i.e., alcohol use, marijuana use, and cigarette use) and psychological strain reactions (i.e., emotional exhaustion and depression) through stress during the COVID-19 pandemic. In addition, we integrate social support theory and expect the moderating role of pet attachment support in the above relationships. By collecting two-wave data from 187 employees with pets in the United States, we found that during the COVID-19 pandemic, stress mediated the relationships between job insecurity and predicted behavioral and psychological reactions. Moreover, pet attachment support buffered the

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relationships between stress and these behavioral and psychological strain reactions (all except cigarette use). Pet attachment support also alleviated the conditional indirect effects job insecurity had on the two types of strain reactions via stress. We discuss theoretical and practical implications of this study.

**Keywords**
Job insecurity, stress, pet attachment support, behavioral strain reactions, psychological strain reactions

The COVID-19 pandemic has yielded unprecedented challenges to organizations and employees (Charoensukmongkol & Phungsoonthorn, 2020; Günaydin, 2021). The surging unemployment rate of 14.7% in April 2020 has indicated a harsh working environment (The U.S. Bureau of Labor Statistics, 2020), under which employees may perceive a heightened sense of job insecurity. Further, given the global effect of COVID-19 its influence is being felt by employees around the globe (e.g., Charoensukmongkol & Puyod, 2021; Duim et al., 2020). An increasing body of literature has suggested that employees perceive job insecurity under COVID-19, (Chen & Eyoun, 2021; Lin et al., 2021), which may create stress (e.g., Shoss, 2017; Sverke et al., 2002) and further generate behavioral and psychological maladjustments such as substance use, emotional exhaustion, and depression (e.g., Frone, 2004; Lee et al., 2018). In such challenging circumstances, individuals are seeking support and comfort not only from humans, but also from non-humans, namely pets (Kelemen et al., 2020). In the United States, there are around 84.6 million pet-owning households (American Pet Products Association, 2018), and pets are generally recognized not just as animals but as family members and friends (e.g., Cain, 1985; Franklin, 2006). Many people experience a deep affection for their pets (Walsh, 2009). A recent survey indicated that more than half of pet owners felt more love and comfort than usual by their pets during the pandemic (Vitus Vet, 2020). Since the nationwide measures of social distancing and “shelter at home” were implemented, pets have become core support systems for individuals’ physical and psychological well-being (Vincent et al., 2020), and a pet can be “an island of sanity in what appears to be an insane world” (Levinson, 1962, p.59).

There is an accumulating body of research demonstrating the benefits of human-pet relationships (Kanat-Maymon et al., 2016). Extant research has documented that pet attachment is an important source of support and can provide individuals with physiological health benefits such as lower blood pressure and higher cardiovascular rehabilitation (Herrald et al., 2002) as well as mental health benefits such as reducing stress (le Roux & Wright, 2020). Based on this, we believe support from pets could be a beneficial resource to deal with stressful life events such as job insecurity and stress during COVID-19.

This study has two main objectives. First, building on the transactional theory of stress (Lazarus & Folkman, 1984, 1987), we aim to understand the mechanism of stress...
through which job insecurity predicts employee behavioral strain reactions (i.e., alcohol use, marijuana use, and cigarette use) and psychological strain reactions (i.e., emotional exhaustion and depression). Focusing on these two overarching categories of reactions offers us a comprehensive understanding of employees’ reactions to job insecurity during COVID-19. Second, integrating social support theory (Cohen & Wills, 1985), we seek to investigate whether and how pet attachment support mitigates the relationships above. Pet attachment support refers to a strong emotional and affectional relational bond between individuals and their pets (Budge et al., 1998; Krause-Parello, 2008). For some pet owners, high attachment to pets enables them to view pets as a source of acceptance, support, and love (Kurdek, 2008; Zilcha-Mano et al. 2011), thereby playing a significant role within their psychological domain (Krause-Parello, 2012). In this study, we anticipate that pet attachment support is an accessible source of social support (Collis & McNicholas, 1998) that buffers the detrimental paths among job insecurity, stress, and employees strain reactions.

By empirically examining our study objectives, we aim to make three important contributions with our study. First, we provide theoretical and empirical insights on the stress-strain mechanism through which job insecurity under COVID-19 increases employees’ behavioral and psychological maladjustments. These findings will be helpful in elucidating employees’ negative reactions to feelings of insecurity under such a challenging context. More importantly, we extend the job insecurity and coping literature by examining the moderating role of a unique type of social support (i.e., pet attachment support), which represents a nonwork and nonhuman support that plays a critical role in buffering the adverse effects of job insecurity. Our consideration of pet attachment support contributes by providing an alternative resource on coping with job insecurity in addition to other types of support such as supervisor or coworker support (e.g., Schreurs et al., 2012).

Second, this study extends the social support literature by investigating the effect of pet attachment support, as a novel form of social support, on individuals’ stressor-strain relationships. Extant social support studies suggest that the benefits of social support largely come from humans (Allen et al., 2001). Although some studies have suggested that cross-species social support offered by pets can have a positive influence in individuals (e.g., Allen et al., 2002), the empirical evidence is still insufficient in terms of how pets could buffer an individual’s stressful life crisis and reduce their behavioral and psychological strain reactions. More importantly, prior research has called for studies investigating the role of attachment to pets (Lewis et al., 2009) as well as the importance of identifying how human-pet relationships help people reduce stress and minimize the risk of mental health problems (Wu et al., 2018) in a fine-grained way. To address these calls, this study sheds light on the social support literature by revealing the positive role of pet attachment support in helping employees handle the stress and subsequent behavioral and psychological reactions (Collis & McNicholas, 1998) due to job insecurity during the COVID-19 pandemic.

Third, this study contributes to the pet support literature by considering pet support in an occupational context. Prior research regarding pet support primarily focuses on
certain groups such as elderly, children, or individuals with mental health issues and examines how pets assist them to handle stressful life events (e.g., Bibbo et al., 2019; Brown et al., 1996). However, the benefits that pets bring to workers are under-researched, which is unfortunate given the increased integration of animals into individuals’ personal and work lives (Kelemen et al., 2020). Our study extends previous work by focusing on a more generalizable population – workers. By doing so, we are able to provide unique theoretical implications for understanding stress-buffering role of pets in the area of occupational health research.

**Theory and Hypothesis Development**

**Job Insecurity and the Transactional Theory of Stress**

As noted previously, the current COVID-19 pandemic is disrupting individuals’ lives, creating uncertainty, and threatening employees’ jobs (Charoensukmongkol & Puyod, 2021; Puyod & Charoensukmongkol, 2021). As such, many people are experiencing job insecurity, especially as they see many colleagues, family members, and friends lose their jobs. Job insecurity is a threat to the continuation of an employee’s job (Ashford et al., 1989). While job insecurity is highly affected by the environment, employees in the same environment may experience different levels of job insecurity (Huang et al., 2017). As such, job insecurity is a perceptual phenomenon (Shoss, 2017). Job insecurity can be detrimental to employees and organizations and is related to several negative outcomes including decreased job attitudes (Ashford et al., 1989), increased burnout (Jiang & Probst, 2017), reduced job performance (Lee et al., 2018), and decreased health-related consequences (Sverke et al., 2002).

One way to understand the effects of job insecurity is through the stressor-strain perspective of the transactional theory of stress (De Witte et al., 2016; Lazarus & Folkman, 1984, 1987). This theoretical perspective to understand job insecurity suggests that job insecurity is a unique stressor, different from work demands, conflict, or time pressure (Lee et al., 2018). The transactional theory of stress suggests that individuals’ evaluation of the stressor, or primary appraisal, determines the formation process of stress (Folkman et al., 1986; Lazarus & Folkman, 1984). At the primary appraisal stage, individuals assess the meaning and the significance of the situation and determine whether it is stressful. This theory also denotes that after primary appraisal, individuals enter the secondary appraisal stage. At this stage, people will evaluate what can be done to cope with stress and exhibit behavioral or psychological reactions (Folkman et al., 1986). Indeed, prior empirical research finds support for this theoretical perspective and has found that job insecurity is a source of stress (Lee et al., 2018; Sverke et al., 2002). Previous research has also found stress to be an important mediating mechanism that helps scholars understand the effects of job insecurity on employees’ behavioral and psychological outcomes (Shoss, 2017). Using this theoretical perspective, we theorize how job insecurity during the COVID-19 pandemic can affect employee strain reactions.
Behavioral Strain Reactions due to Job Insecurity

Behavioral strain reactions are behavioral actions taken by individuals because of stress as a potential means to reduce the tension (Conger, 1956), as a means to dampen the effects of the stress (Sayette, 1999), or as a coping behavior in reaction to the stress. Behavioral strain reactions due to work stressors can include behaviors such as unhealthy eating (Liu et al., 2017), alcohol use (Grunberg et al., 1998), illicit drug use (Frone, 2008; Johnson & White, 1995), and cigarette use (Frone et al., 1994; Todd, 2004). These examples illustrate the negative nature of these behavioral strain reactions due to stressors. We focus on three indicators of behavioral strain reactions: alcohol, marijuana, and cigarette use. The use of substances in response to stress has typically been viewed as a way for individuals to reduce tension related to the experience of stress (Conger, 1956; Frone, 2008). Substance use allows individuals the ability to distract themselves from their stressful situations and provides an outlet for individuals. While the use of substances such as alcohol, marijuana, and cigarettes may afford individuals temporary respite from their stressful situation, these substances have been linked with several negative life and health outcomes for the individuals who use them (Simou et al., 2018; Volkow et al., 2014). Still, each of these potentially harmful substances may be a strain reaction to job insecurity via stress. As such, we predict that job insecurity during COVID-19 will increase employees’ alcohol, marijuana, and cigarette use indirectly through their feelings of stress.

Hypotheses 1 a-c: Job insecurity has an indirect, positive effect on behavioral strain reactions of a) alcohol use, b) marijuana use, and c) cigarette use via stress.

Psychological Strain Reactions due to Job Insecurity

In contrast to behavioral strain reactions, psychological strain reactions are psychological aspects of individuals that are affected by the stressor-strain relationship. Psychological strain reactions include negative effects on psychological health, such as mental health and wellness (Cheng & Chan, 2008) and employee well-being such as satisfaction (Cuyper et al., 2008) and emotional exhaustion (Zhong et al., 2009). Prior research has theorized and found consistent empirical support that job security increases psychological strain on employees (Jordan et al., 2002; Shoss, 2017). For example, in their meta-analysis, Cheng and Chan (2008) found that job insecurity significantly decreased employees’ general psychological health. De Witte (1999) similarly found that job insecurity decreased employee well-being and that job insecurity mirrored the effects of actual job loss. We focus on two types of psychological strain: state depression and emotional exhaustion. State depression is a psychological strain reaction and includes feelings of worthlessness, inability to focus, and feelings of hopelessness (Hayes et al., 2016). We consider state depression, rather than chronic depression, as we are interested in exploring the temporal aspect of how COVID-19 is affecting employees. Emotional exhaustion, on the other hand, focuses on feelings of
being emotionally overextended and drained by one’s work (Wright & Cropanzano, 1998). Both of these are common psychological strain reactions as they reduce the mental health and well-being of individuals, and prior research and theory suggest that job insecurity should harm these outcomes (e.g., Cheng & Chan, 2008; Kausto et al., 2005). Thus, we predict that during the COVID-19 pandemic employees that experience job insecurity they will have increased psychological strain reactions indirectly through their stress.

Hypotheses 2 a-b: Job insecurity has an indirect, positive effect on psychological strain reactions of a) emotional exhaustion and b) depression via stress.

Pet Attachment Support

Pet attachment represents high levels of intimacy and bonding between owners and their animals (Budge et al., 1998; Wu et al., 2018). One’s attachment to pets plays an important psychological role in their lives as it can increase well-being, health, and self-esteem (Amiot & Bastian, 2015). Although scholars have considered the benefits of pet ownership alone, the findings are inconsistent (Herzog, 2011). For example, Garrity and colleagues (1989) reported that it was the support from pet attachment, but not just pet ownership, that was associated with one’s emotional well-being. These findings highlight the need to focus more on the nature of support derived from pet ownership (Lewis et al., 2009), rather than the presence of a pet. Individuals have pets for many different reasons (e.g., because of a family member, personal desire), which is why it is important to focus on the relationship and support one derives from his or her pet, and not simply the presence of a pet.

Researchers have posited that pet attachment is a unique and accessible source of social support (Beetz, 2017; Krause-Parello, 2008, 2012) for several reasons. Pets can be perceived as “close others”, which refer to the group of people one feels close and trusts (McConnell et al., 2011). A burgeoning line of research demonstrates that pets are seen as family members (Krause-Parello, 2012). Pet-owner relationships can substitute for other social relationships, and the support from pets is comparable to the support received from other family members such as siblings, parents, and children (Bekker & Mallavarapu, 2019). Individuals often identify their pet as a member of their social network, which provides emotional support that further helps to cope with life changes and stress (Melson, 2003). Being considered as “close others” in owners’ lives and nonjudgmental members of their social networks, pets provide owners with feelings of being cared for, loved, and valued (Horowitz, 2008; Nebbe, 2001). Pets can also provide a constant source of attachment security and can embody emotional support equivalent to that from close family members, thereby improving their owner’s well-being (Wells, 2009). This is considerably salient during the COVID-19 pandemic because one’s family members or close friends may not be present to provide immediate comfort due to the social distancing measures.
Moreover, a pet typically contains the characteristics of being loyal, accepting, affectionate, and consistent, which all are critical resources that satisfy one’s needs to be loved and feel self-worth (Collis & McNicholas, 1998). Relatedly, through pet attachment support, pets provide a sense of security and safety for owners in the time of distress, because they are always supportive and respond with unconditional love (Zilcha-Mano et al., 2011). In addition, one implicit nature of human-pet relationships is that pets need their owners to care for them. Taking care of pets enables owners to develop a sense of being needed (Bekker & Mallavarapu, 2019). The close attachment due to the caring responsibility provides social need fulfillment, which can benefit owners’ well-being (Krause-Parello, 2012). Through pet attachment support, owners feel that they are needed, which in turn provides reassurance of their self-worth. Indeed, prior research has shown that pets serve as stress reducers (e.g., Wheeler & Faulkner, 2015). In the following section, we consider pet attachment to be a critical type of social support that alleviates the stress under COVID-19.

The Moderating Effect of Pet Attachment Support

As noted, pets can have a positive and motivating impact on people facing life challenges (Kanat-Maymon et al., 2016). We incorporate social support theory (Cohen & Wills, 1985) to conceptualize the moderating role of pet attachment support. Social support refers to the social resources one perceives to be available for them through both formal and informal helping relationships (Gottlieb & Bergen, 2010). Social support can come from organizational sources like supervisors (Charoensukmongkol, 2021; Guang & Charoensukmongkol, 2020) and can also come from individual sources, like pets. Social support theory suggests that social support enables individuals to cope with stressful events and reduces one’s perception that a situation is stressful; thus, individuals who received this social support are less reactive to perceived stress (Cohen & Wills, 1985; Thoits, 1986). In particular, the buffering effects are more salient under stressful life conditions (Fu & Charoensukmongkol, 2021). Thus, social support mitigates the physiological and psychological responses to stressful life events (Kessler & McLeod, 1985). Extant literature has documented that pets provide a supportive function that buffers individuals from challenging situations (Siegel, 1990). Drawing on social support theory, pet attachment support should specifically mitigate the relationships between stress and both behavioral and psychological reactions, due to job insecurity during COVID-19. Pets can serve as a source of calming support by establishing a depth of connection with their owners in times of crisis (e.g., Brooks et al., 2018). In particular, high pet attachment indicates that employee pet owners have a strong bond with their pets, which assists employees to find a life routine and helps employees put things into perspective (Allen et al., 2001). Pets live in the moment (Cusack, 1988), and are relatively available and predictable (Levinson & Mallon, 1997). These characteristics enable employees to be more immune to the negative effects of traumatic experiences (Brooks et al., 2018). Thus, when stress is high, employees with high pet attachment support are more likely to live in the present and
“think beyond themselves” (Wood et al., 2005, p. 1159); as a result, they are less inclined to lose direction and adapt detrimental strain reactions.

In addition, as mentioned previously, pet attachment support can satisfy owners’ psychological needs (Kurdek, 2008), as the caring role owners have on their pets helps them to feel that they are needed (Bekker & Mallavarapu, 2019; Collis & McNicholas, 1998). Specifically, pet owners’ relatedness needs are fulfilled through the owners’ experience of care and concern for their pets gained via pet attachment (Kanat-Maymon et al., 2016). When stress is high, a stronger level of pet attachment support makes individuals feel that they are needed by their pets, who can fulfill the social role of caretakers that help to bring psychological resources such as self-worth (Nebbe, 2001). These support resources help to buffer the effects of stress on behavioral and psychological reactions.

Moreover, pet attachment support represents the emotional resources of unconditional, constant, and nonjudgmental comfort that employees could rely on to be recreationally distracted from external worries (Collis & McNicholas, 1998; Zilcha-Mano et al., 2011). Social support literature has suggested that positive affect and positive emotions may help employees react less to perceived stress (Allen et al., 2001; Cohen & Wills, 1985). Pets are always there when owners need to seek emotional support from them, especially in unpredictable external environments (Allen et al., 2002; Zilcha-mano et al., 2011). In other words, by offering attachment support, pets can be a type of safe haven for their owners (Meehan et al., 2017) especially when stress is high, thereby further reducing employees’ behavioral and psychological strain reactions.

Thus, the positive emotional support from pets offers can offer critical resources that can enhance employees’ capacity to adapt to stressful experiences (Cohen, 2002). In line with social support theory, we propose that:

Hypotheses 3 a-c: Pet attachment support weakens the positive relationships between stress and a) alcohol use, b) marijuana use, and c) cigarette use.

Hypotheses 4 a-b: Pet attachment support weakens the positive relationships between stress and a) emotional exhaustion and b) depression.

Finally, integrating our prior hypotheses we expect that pet attachment support will indirectly moderate the relationship between job insecurity and employees’ behavioral and psychological strain reactions. Specifically, we expect that pet attachment support will minimize the effects of job insecurity on their strain reactions.

Hypotheses 5 a-c: Pet attachment support weakens the indirect, positive relationships between job insecurity and behavioral strain reactions of a) alcohol use, b) marijuana use, and c) cigarette use via stress.
Hypotheses 6 a-b: Pet attachment support weakens the indirect, positive relationships between job insecurity and psychological strain reactions of a) emotional exhaustion and b) depression via stress.

Method

Participants and Procedures

Data were collected in two waves with a 1-week time lag using Prolific, an online platform for recruiting participants for scientific research purposes (Palan & Schitter, 2018). Prolific has been suggested to be useful in collecting quality data comparable to other online platforms (Peer et al., 2017). Importantly, our sample was collected at the peak of COVID-19 and when a large majority of states in the United States were locked down. As of this writing and according to data from the Washington Post (Fox et al., 2020), the peak of COVID-19 (in terms of deaths) in the United States was April 21, the same day as we collected our first wave of data. Also, two of the three most populous states in the US (Florida and Texas) began opening back up during the first week in May. Many other states began opening back up in early May as well. Thus, the timing of our sample gave us a unique opportunity to collect data associated with the height of the pandemic and before most places in the United States had begun loosening restrictions. To be eligible for this study, participants were required to be (1) pet owners and (2) working at least 20 hours/week in the United States. We targeted pet owners in our sample because existing literature suggests focusing on the quality of the pet-owner relationship rather than the mere presence of a pet (Herzog, 2011). Participants received $2.5 in compensation at the conclusion of each wave. The first wave was launched on April 21, 2020; in this wave, participants were asked to answer questions regarding demographics, job insecurity, and stress. A total of 207 employees responded to our first survey. Following the end of the first wave, the participants were invited to complete the second survey beginning on April 28, 2020, and 187 of them did so, resulting in a response rate of 90%. The participants provided their Prolific IDs at both waves and we used them to match the data. We had two attention check questions and the data we retained were from the participants who passed both attention check questions. In the second-wave survey, participants answered questions on pet attachment support, substance use (i.e., alcohol, marijuana, cigarette), emotional exhaustion, and depression. Among the participants, 50% were male; the average age was 37 years; 71% of them were married.

Measures

Job Insecurity (Time 1, α = .93). We assessed job insecurity during COVID-19 with the four-item Likert scale (1 = “strongly disagree” to 5 = “strongly agree”) by Borg and Elizur (1992). We asked the participants this question: “During the past month during
COVID-19, how much do you agree or disagree with each statement about your job?” A sample item is “my job is not secure.”

**Stress (Time 1, \( \alpha = .82 \)).** Stress was measured with the four-item scale by Restubog et al. (2011). Participants were asked the question: “In the past month during COVID-19, how often have you been …” (1 = “never” to 5 = “almost always”). The items are “feeling stressful”, “feeling restless”, “feeling worthless”, and “feeling in panic”.

**Pet Attachment Support (Time 2, \( \alpha = .94 \)).** Pet attachment support was measured with 13 items from Zasloff (1996) on a five-point Likert scale (1 = “strongly disagree” to 5 = “strongly agree”). We asked participants to refer to one pet they currently own for this measure. If participants had multiple pets, we asked them to refer to the pet they had the most interaction during the pandemic. We asked participants to answer each item based on their experience during the COVID-19 pandemic. A sample item is “My pet has provided me with companionship.”

**Substance Use (Time 2).** Following Frone (2008), for each of the three substances (i.e., alcohol, marijuana, cigarette), we asked the employees to indicate their increase in consumption (for alcohol) or use (for marijuana and cigarettes) “during the past 6-weeks, during the COVID-19 pandemic.” We asked participants to indicate their increase in order to control for their baseline use of these substances. Responses were recorded on a five-point scale (1 = “no increase” to 5 = “a very large increase”).

**Emotional Exhaustion (Time 2, \( \alpha = .95 \)).** Emotional exhaustion was measured with Maslach and Jackson’s (1986) nine-item Likert scale (1 = “never” to 5 = “almost always”). It measured how often one feels emotionally exhausted by one’s work during COVID-19. A sample item is “I feel emotionally drained from my work.”

**Depression (Time 2, \( \alpha = .93 \)).** Depression was assessed with the eight-item scale by Toker and Biron (2012). Participants were asked, “During the past 6 weeks during COVID-19, have you been bothered by any of the following things” (1 = “never” to 5 = “almost always”). A sample item is, “Feeling down, depressed, or hopeless.”

**Control Variables (Time 1).** Following recent recommendations (Becker et al., 2016) on the selection of control variables, we included employee demographics (e.g., sex, age, marital status). Following the suggestion by Cho (2020), we also considered and controlled the potential variations of telecommuting status by asking participants, “What percent of your time have you worked from home since the COVID-19 pandemic?”
Analytical Strategy

Table 1 reports the descriptive statistics of the variables. Prior to hypothesis testing, we performed a confirmatory factor analysis (CFA). Because the ratio of sample size to parameters was below the value of 5 (Bentler & Chou, 1987), we followed the method recommended by Little et al. (2013) to create two parcels each for pet attachment support, emotional exhaustion, and depression. As shown in Table 2, the five-factor model yielded superior fit than alternative models. We then examined our hypotheses using structural equation modeling (SEM) in Mplus. Before testing the model, we mean-centered values of stress and pet attachment support to improve the interpretability of the results (Dalal & Zickar, 2012). In addition, we used a Monte Carlo procedure with 20,000 replications to obtain bias-corrected confident intervals (CIs) for all indirect effect and conditional indirect effects (Preacher & Selig, 2012).

Results

Hypotheses 1a-1c predict that job insecurity will be positively and indirectly related to a) alcohol use, b) marijuana use, and c) cigarette use via stress. To test these hypotheses, we ran a mediation model. As shown in Figure 1, job insecurity is positively related to stress ($b = .38, p < .01$); stress is positively related to alcohol use ($b = .19, p < .01$), marijuana use ($b = .14, p < .01$), and cigarette use ($b = .16, p < .01$). In addition, the indirect effects of job insecurity on these outcomes via stress are also positive and significant (see Table 3). Hence, Hypotheses 1a-1c are supported. Hypotheses 2a and 2b are also supported, as stress is positively associated with emotional exhaustion ($b = .44, p < .01$) and depression ($b = .56, p < .01$), and the indirect effects of job insecurity on emotional exhaustion and depression are both significant (see Table 3).

Hypotheses 3a-3c predict that pet attachment support should moderate the relationships between stress and (a) alcohol use, (b) marijuana use, and (c) cigarette use, while Hypotheses 4a-4b propose that pet attachment support should moderate the relationship between stress and (a) emotional exhaustion and (b) depression. As indicated in Figure 2, the coefficients of the interaction (i.e., stress × pet attachment support) leading to alcohol use ($b = -.18, p < .05$), marijuana use ($b = -.14, p < .01$), emotional exhaustion ($b = -.13, p < .05$) and depression ($b = -.14, p < .01$) are significant; however, pet attachment support does not moderate the relationship between stress and cigarette use ($b = .04, n.s.$). We also plot the figures to demonstrate the significant interaction effects (Figures 3-6). Figure 3 demonstrates that stress is positively related to alcohol use when pet attachment support is low ($b = .39, p < .01$), but is not related to alcohol use when pet attachment support is high ($b = .02, n.s.$). The slope difference test shows that the slopes differ significantly ($\Delta b = -.37, p < .05$). Therefore, Hypothesis 3a is supported. Consistent with Hypothesis 3b, Figure 4 shows that the relationship between stress and marijuana use is positive when pet attachment support is low ($b = .29, p < .01$), but it is not significant when pet attachment support is high ($b = .01, n.s.$). The difference of coefficient is also significant ($\Delta b = -.28, p < .01$).
|   | Mean | SD  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 |   |
|---|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|---|
| 1. Sex | 1.50 | 0.50 | (-) | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) |   |
| 2. Age | 36.66 | 8.96 | .00 | .03 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |   |
| 3. Marital status | 0.71 | 0.45 | .18 | .18 | .18 | .18 | .18 | .18 | .18 | .18 | .18 | .18 | .18 | .18 |   |
| 4. WFH percentage | 68.82 | 42.07 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |   |
| 5. Job insecurity (T1) | 2.15 | 1.02 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 |   |
| 6. Stress (T1) | 2.02 | 0.82 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 |   |
| 7. Pet attachment support (T2) | 4.27 | 0.74 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 |   |
| 8. Alcohol use (T2) | 1.53 | 0.89 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |   |
| 9. Marijuana use (T2) | 1.22 | 0.62 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |   |
| 10. Cigarette use (T2) | 1.16 | 0.56 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |   |
| 11. Emotional exhaustion (T2) | 2.18 | 1.01 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 |   |
| 12. Depression (T2) | 2.07 | 0.94 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 |   |

Note: N = 187 employees. SD = standard deviation; T1 = Time 1, Time 2 = Time 2, 1 week after Time 1; Reliabilities are shown in parentheses on the diagonal. WFH = work from home; Sex: 1 = male, 2 = female; Marital status: 0 = unmarried, 1 = married. *p < .05, **p < .01.
Figure 5 shows that the relationship between stress and emotional exhaustion is positive, but weaker when pet attachment support is high (\(b = .33, p < .01\)) than when it is low (\(b = .58, p < .01\)). The difference of slopes is significant (\(\Delta b = -.26, p < .05\)), further supporting Hypothesis 4a. Figure 6 shows that the relationship between stress and depression is positive, but weaker when pet attachment support is high (\(b = .44, p < .01\)) than when it is low (\(b = .72, p < .01\)). The difference of slopes is significant (\(\Delta b = -.28, p < .01\)). Hence, Hypothesis 4b is supported. In summary, Hypotheses 3a, 3b, 4a and 4b are supported, but Hypothesis 3c is not supported.

| Model                     | \(\chi^2\) | df | \(\Delta\chi^2\) | \(\Delta df\) | Rmsea | CFI  | TLI  |
|---------------------------|------------|----|-------------------|---------------|-------|------|------|
| Model 1: Five factors     | 148.69     | 67 | .08               |               | .96   | .95  |      |
| Model 2: Four factors     | 306.91     | 71 | 158.22**          | 4             | .13   | .89  | .86  |
| Model 3: Three factors    | 370.34     | 74 | 221.65**          | 7             | .15   | .86  | .83  |
| Model 4: Two factors      | 1111.28    | 76 | 962.59**          | 9             | .27   | .52  | .42  |

Note. \(N = 187\) employees. * \(p < .05\), ** \(p < .01\).
Model 1: baseline model with job insecurity, stress, pet attachment support, emotional exhaustion, and depression loaded on their respective factors.
Model 2: four-factor model with emotional exhaustion and depression loaded onto one factor.
Model 3: three-factor model with stress, emotional exhaustion and depression loaded onto one factor.
Model 4: two-factor model with variables measured at Time 1 (job insecurity, stress) and Time 2 (pet attachment support, emotional exhaustion, depression) loaded onto respective factors.

Figure 1. The results for mediation model. Note. Unstandardized path coefficients are reported. For the ease of readability, we omitted the path estimates from control variables in the model. T1 = Time 1, T2 = Time 2. * \(p < .05\), ** \(p < .01\).
Table 4 reports the conditional indirect effects. Because of no support for Hypothesis 3c, we do not test the moderated mediation effect on cigarette use (Hypothesis 5c). As shown in Table 4, the indirect effects of job insecurity on alcohol use and marijuana use are positive and significant when pet attachment support is low, but neither is significant when pet attachment support is high. The differences in indirect effects are significant, supporting Hypotheses 5a and 5b. Hypotheses 6a and 6b are also supported, as the indirect effects of job insecurity on emotional exhaustion and depression are more positive when pet attachment support is low than when pet attachment support is high (see Table 4).

Table 3. The Estimates of Indirect Effects.

| Indirect Effects                          | Estimate | 95% CI    |
|------------------------------------------|----------|-----------|
| Job insecurity → Stress → Alcohol use    | .07      | [.02, .13]|
| Job insecurity → Stress → Marijuana use  | .05      | [.02, .09]|
| Job insecurity → Stress → Cigarette use  | .06      | [.03, .10]|
| Job insecurity → Stress → Emotional exhaustion | .17  | [.10, .24]|
| Job insecurity → Stress → Depression     | .21      | [.14, .30]|

Note. CI = confidence interval; Bootstrap samples = 20,000.

Figure 2. The results for moderated mediation model. Note. Unstandardized path coefficients are reported. For the ease of readability, we omitted the path estimates from control variables in the model. T1 = Time 1, Time 2 = Time 2. *p < .05, **p < .01.

Table 4 reports the conditional indirect effects. Because of no support for Hypothesis 3c, we do not test the moderated mediation effect on cigarette use (Hypothesis 5c). As shown in Table 4, the indirect effects of job insecurity on alcohol use and marijuana use are positive and significant when pet attachment support is low, but neither is significant when pet attachment support is high. The differences in indirect effects are significant, supporting Hypotheses 5a and 5b. Hypotheses 6a and 6b are also supported, as the indirect effects of job insecurity on emotional exhaustion and depression are more positive when pet attachment support is low than when pet attachment support is high (see Table 4).
Discussion

Our study examines the effects job insecurity has on three behavioral strain reactions – alcohol use, marijuana use, and cigarette use, along with two psychological strain reactions – emotional exhaustion and depression during the current COVID-19 global pandemic. Extending previous studies, our results show that job insecurity due to the COVID-19 pandemic does, in fact, have a positive, indirect relationship with the
behavioral strain reactions of alcohol use, marijuana use, and cigarette use via stress. Further, we show that job insecurity also positively and indirectly affects emotional exhaustion and depression via stress. In line with our hypotheses, pet attachment support buffers the positive relationship between job insecurity and the following strain reactions: alcohol use, marijuana use, emotional exhaustion, and depression. Previous research has found that pets can provide important support to their owners.
(e.g., Allen et al., 2002; Brooks et al., 2018; Wood et al., 2005), and we also find this to be the case in the context of COVID-19. Pet owners who were more attached to their pets did not report a significant increase in alcohol and marijuana use induced by job insecurity. However, owners who were less attached to their pet did have a significant increase in their alcohol and marijuana use. Also, job insecurity had less impact on feelings of emotional exhaustion and depression among employees who received a higher level of attachment support to their pets. However, pet attachment support did not moderate the relationship between job insecurity and cigarette use. One possible explanation is that compared to alcohol, smoking cigarettes is less prevalent among Americans. According to (Centers for Disease Control and Prevention 2017a, 2017b), around 13.8% of Americans smoke cigarettes while this number almost doubles (25.1%) for alcohol use; in our sample, the mean for smoking cigarettes is 1.16 while it is 1.53 for alcohol use. Hence, the low base rate may have made it harder to find a significant interaction effect. However, future research could re-examine this relationship for more understanding.

**Theoretical and Practical Implications**

Previous research has studied the negative effects of job insecurity on employees (e.g., Lee et al., 2018; Reisel & Banai, 2002; Shoss, 2017) and also looked at how pets can be a support system for their owners (e.g., Allen et al., 2001; Wood et al., 2005). Our

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**Table 4. The Estimates of Conditional Indirect Effects.**

| Conditional Indirect Effects | Estimate | 95% CI       |
|-----------------------------|----------|--------------|
| Job insecurity → Stress → Alcohol use |          |              |
| High pet attachment support (+1SD) | .01      | [-.06, .08]  |
| Low pet attachment support (-1SD)  | .15      | [.06, .24]   |
| Difference between low and high pet attachment support | -1.14    | [-.26, -.04] |
| Job insecurity → Stress → Marijuana use |          |              |
| High pet attachment support (+1SD) | .00      | [-.05, .05]  |
| Low pet attachment support (-1SD)  | .11      | [.05, .17]   |
| Difference between low and high pet attachment support | -1.11    | [-.19, -.03] |
| Job insecurity → Stress → Emotional exhaustion |          |              |
| High pet attachment support (+1SD) | .12      | [.05, .21]   |
| Low pet attachment support (-1SD)  | .22      | [.13, .33]   |
| Difference between low and high pet attachment support | -1.10    | [-.20, -.01] |
| Job Insecurity → Stress → Depression |          |              |
| High pet attachment support (+1SD) | .17      | [.10, .25]   |
| Low pet attachment support (-1SD)  | .27      | [.18, .39]   |
| Difference between low and high pet attachment support | -1.11    | [-.20, -.02] |

Note. CI = confidence interval; Bootstrap samples = 20,000; The numbers in bold indicate significant estimates.
results support the notion that job insecurity leads to negative behavioral and psychological strain reactions for employees and that pets can help buffer employees against these negative outcomes. The ideas presented here contribute to scholars’ knowledge of how job security during the COVID-19 pandemic is affecting employees and how pet attachment support can minimize the negative effects. In doing so, our study has theoretical implications for three distinct research areas. First, we contribute to research on job insecurity. Building on the transactional theory of stress (Lazarus & Folkman, 1984), we have provided insights into how job insecurity due to COVID-19 can have negative effects on employees’ behaviors and psychological states. This is an important discovery for scholars studying job insecurity and for scholars studying how COVID-19 is negatively impacting employees. Perhaps more importantly, we also help extend the job insecurity literature by looking at how the relationships between job insecurity and behavioral and psychological outcomes are moderated by pet attachment support, a unique type of social support. While previous research has looked at how other humans at work might buffer against the negative effects of job insecurity (e.g., Schreurs et al., 2012), this is the first study of which we know that has looked at how animals might also reduce these negative effects.

Second, we shed light on the social support literature by highlighting the important role pets can play in offering social support to humans. We have contributed to this line of inquiry by showing that pet attachment support minimizes the negative effects that job insecurity from COVID-19 can have on drinking alcohol, using marijuana, feeling emotionally exhausted and feeling depressed. We hope that future research will continue to look at how people can receive social support benefits from animals. Third, and finally, this study contributes to the pet support literature by extending the benefits of pet support specifically to employees. Previous research in pet support has primarily been in the counseling (e.g., Brown et al., 1996) and human-animal interaction (e.g., Bibbo et al., 2019) literatures. However, it is important to bring this topic into the management literature as well. We do this in our study by looking at how pet attachment moderates the effects of a work-related variable. We hope that this can help spark future pet support research in the management literature.

Our results also have important implications for managers. Managers should be attuned to the levels of job insecurity that their employees are feeling. Our results suggest that job insecurity has negative effects on behaviors and psychological strain reactions. Managers can help employees by helping them reduce unwarranted feelings of job insecurity. However, many times, such as during this COVID-19 pandemic, feelings of job insecurity among employees likely are warranted. Therefore, in situations like this, managers should understand how to buffer the negative effects of job insecurity. One important way our research found to buffer the negative effects of job insecurity is through having an attachment to a pet. Although organizations cannot require employees to get a pet, organizations can make efforts to have pet-friendly policies (Cunha et al., 2019). For example, some companies are starting to let employees buy insurance for their pets (Hoyman & Duer, 2004). Others are allowing employees to bring their pets to work (Dobrian, 2017). Based on this and other research,
managers would be wise to consider the benefits of creating policies that help support the pets of employees. Our study might also help employees become aware of the beneficial role their pets can provide in challenging life situations. Thus, employees may seek to establish a strong affective bond with their pets, as we found pet attachment support to be a useful buffering source that reduces the effects of job insecurity and stress on detrimental strain reactions to the COVID-19 pandemic.

**Limitations and Directions for Future Research**

This study is not without limitations. First, our sample used all self-report data. However, researchers have suggested that self-report data are valid and more appropriate when examining perceptual outcomes (Chan, 2009), and a meta-analysis has shown that collecting sensitive concepts data (e.g., substance use) from the focal source is more accurate than other-reports (Carpenter et al., 2017). Yet, it would be desirable for future research to include other sources of measurement (e.g., objective data, spouse-reported data) in similar research designs. Second, our participants were limited to employees in the United States. However, COVID-19 is a global pandemic that is affecting employees worldwide. Therefore, future studies could replicate our findings in other impacted countries.

Another limitation to our study is that we focused on negative coping mechanisms but it is possible that employees dealt with the negative effects of COVID-19 with positive coping mechanisms (e.g., exercise, seeking social connections). Future research may take the lens of positive psychology by mainly investigating the bright impact of pet attachment support on employees’ well-being and other positive consequences. Further, our study specifically sought to understand the role of pet support but future research could examine other social support sources such as networks and support from human beings. Researchers could either control for these resources to rule out the influences of other support, or integrate these resources in the model and examine whether these may shape the moderating effect of pet attachment support in the stress reduction mechanism. Lastly, while the boundary condition (i.e., pet attachment support) was theoretically derived, there may be other plausible moderators. Future studies could also examine whether attachment to particular types of pets (e.g., dogs, cats) provide more social support for employees, to enrich our understanding of when the stress-strain links could be mitigated.

**Conclusion**

Our results indicate that during this COVID-19 pandemic, employees who have higher feelings of job insecurity are also feeling more stress. This stress is leading to behaviors and psychological strain reactions. Luckily, pet attachment support is able to minimize most of these effects. Therefore, pets can play an important role to help buffer employees from negative feelings due to work.
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References

Allen, K., Blascovich, J., & Mendes, W. B. (2002). Cardiovascular reactivity and the presence of pets, friends, and spouses: The truth about cats and dogs. Psychosomatic Medicine, 64(5), 727–739. https://doi.org/10.1097/01.psy.0000024236.11538.41

Allen, K., Shykoff, B. E., & Izzo, J., L. Jr (2001). Pet ownership, but not ACE inhibitor therapy, blunts home blood pressure responses to mental stress. Hypertension, 38(4), 815–820. https://doi.org/10.1161/hyp.38.4.815

American Pet Product Association. (2018). The 2017-2018 APPA national pet owners survey debut. https://www.mceldrewyoung.com/wp-content/uploads/2018/08/2017-2018-Pet-Survey.pdf (Accessed 25 May 2020).

Amiot, C. E., & Bastian, B. (2015). Toward a psychology of human–animal relations. Psychological Bulletin, 141(1), 6–47. https://doi.org/10.1037/a0038147

Ashford, S. J., Lee, C., & Bobko, P. (1989). Content, cause, and consequences of job insecurity: A theory-based measure and substantive test. Academy of Management Journal, 32(4), 803–829. https://doi.org/10.5465/256569

Becker, T. E., Atinc, G., Breaugh, J. A., Carlson, K. D., Edwards, J. R., & Spector, P. E. (2016). Statistical control in correlational studies: 10 essential recommendations for organizational researchers. Journal of Organizational Behavior, 37(2), 157–167. https://doi.org/10.1002/job.2053

Beetz, A. M. (2017). Theories and possible processes of action in animal assisted interventions. Applied Developmental Science, 21(2), 139–149. https://doi.org/10.1080/10888691.2016.1262263

Bekker, O. A., & Mallavarapu, S. (2019). Pet attachment and the social support that pets provide to college students. The Kennesaw Journal of Undergraduate Research, 6(1), 4. https://doi.org/10.32727/25.2019.30

Bentler, P. M., & Chou, C. P. (1987). Practical issues in structural modeling. Sociological Methods & Research, 16(1), 78–117. https://doi.org/10.1177/0049124187016001004

Bibbo, J., Curl, A. L., & Johnson, R. A. (2019). Pets in the lives of older adults: A life course perspective. Anthrozoös, 32(4), 541–554. https://doi.org/10.1080/08927936.2019.1621541
Borg, I., & Elizur, D. (1992). Job insecurity: Correlates, moderators and measurement. *International Journal of Manpower, 13*(2), 13–26. https://doi.org/10.1108/01437729210010210

Brooks, H. L., Rushton, K., Lovell, K., Bee, P., Walker, L., Grant, L., & Rogers, A. (2018). The power of support from companion animals for people living with mental health problems: A systematic review and narrative synthesis of the evidence. *BMC Psychiatry, 18*(1), 31. https://doi.org/10.1186/s12888-018-1613-2

Brown, B. H., Richards, H. C., & Wilson, C. A. (1996). Pet bonding and pet bereavement among adolescents. *Journal of Counseling & Development, 74*(5), 505–509. https://doi.org/10.1002/j.1556-6676.1996.tb01901.x

Budge, R. C., Spicer, J., Jones, B., Claire Budge, R., & George, R. S. (1998). Health correlates of compatibility and attachment in human-companion animal relationships. *Society & Animals, 6*(3), 219–234. https://doi.org/10.1163/156853098x00168

Cain, A. O. (1985). Pets as family members. *Marriage & Family Review, 8*(3-4), 5–10. https://doi.org/10.1300/j002v08n03_02

Carpenter, N. C., Rangel, B., Jeon, G., & Cottrell, J. (2017). Are supervisors and coworkers likely to witness employee counterproductive work behavior? An investigation of observability and self–observer convergence. *Personnel Psychology, 70*(4), 843–889. https://doi.org/10.1111/peps.12210

Centers for Disease Control and Prevention. (2017a). *Alcohol use*. https://www.cdc.gov/nchs/fastats/alkohol.htm (Accessed 25 May 2020).

Centers for Disease Control and Prevention. (2017b). *Cigarette smoking and electronic cigarette use*. https://www.cdc.gov/nchs/fastats/smoking.htm (Accessed 25 May 2020).

Chan, D. (2009). So why ask me? Are self-report data really that bad? In C. E. Lance & R. J. Vandenberg (Eds.), *Statistical and methodological myths and urban legends: Doctrine, verity and fable in the organizational and social sciences* (pp. 311–338). Routledge.

Charoensukmongkol, P. (2021). How Chinese expatriates’ cultural intelligence promotes supervisor-subordinate Guanxi with Thai Employees: The mediating effect of expatriates’ benevolence. *International Journal of Cross Cultural Management, 21*(1), 9–30. https://doi.org/10.1177/1470595821996735

Charoensukmongkol, P., & Phungsoonthorn, T. (2020). The interaction effect of crisis communication and social support on the emotional exhaustion of university employees during the COVID-19 crisis. *International Journal of Business Communication*. Advance online publication. https://doi.org/10.1177/2329488420953188

Charoensukmongkol, P., & Puyod, J. V. (2021). Influence of transformational leadership on role ambiguity and work–life balance of Filipino University employees during COVID-19: Does employee involvement matter? *International Journal of Leadership in Education*. Advance online publication. https://doi.org/10.1080/13603124.2021.1882701

Chen, H., & Eyoun, K. (2021). Do mindfulness and perceived organizational support work? Fear of COVID-19 on restaurant frontline employees’ job insecurity and emotional exhaustion. *International Journal of Hospitality Management, 94*, 102850. https://doi.org/10.1016/j.ijhm.2020.102850
Cheng, G. H. L., & Chan, D. K. S. (2008). Who suffers more from job insecurity? A meta-analytic review. *Applied Psychology, 57*(2), 272–303. https://doi.org/10.1111/j.1464-0597.2007.00312.x

Cho, E. (2020). Examining boundaries to understand the impact of COVID-19 on vocational behaviors. *Journal of Vocational Behavior, 119*, 103437. https://doi.org/10.1016/j.jvb.2020.103437

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310–357. https://doi.org/10.1037/0033-2909.98.2.310

Cohen, S. P. (2002). Can pets function as family members? *Western Journal of Nursing Research, 24*(6), 621–638. https://doi.org/10.1177/019394502320555386

Collis, G. M., & McNicholas, J. (1998). A theoretical basis for health benefits of pet ownership. In C. C. Wilson & D. C. Turner (Eds.), *Companion animals in human health* (pp. 105–122). Sage Publications.

Conger, J. J. (1956). II. Reinforcement theory and the dynamics of alcoholism. *Quarterly Journal of Studies on Alcohol, 17*(2), 296–305. https://doi.org/10.15288/qjsa.1956.17.296

Cunha, M. P. E., Rego, A., & Munro, I. (2019). Dogs in organizations. *Human Relations, 72*(4), 778–800. https://doi.org/10.1177/0018726718780210

Cusack, O. (1988). *Pets and mental health*. Haworth Press.

Cuyper, N. D., Bernhard-Oettel, C., Berntson, E., Witte, H. D., & Alarco, B. (2008). Employability and employees’ well-being: Mediation by job insecurity. *Applied Psychology, 57*(3), 488–509. https://doi.org/10.1111/j.1464-0597.2008.00332.x

Dalal, D. K., & Zickar, M. J. (2012). Some common myths about centering predictor variables in moderated multiple regression and polynomial regression. *Organizational Research Methods, 15*(3), 339–362. https://doi.org/10.1177/1094428111430540

De Witte, H. (1999). Job insecurity and psychological well-being: Review of the literature and exploration of some unresolved issues. *European Journal of Work and Organizational Psychology, 8*(2), 155–177. https://doi.org/10.1080/135943299398302

De Witte, H., Pienaar, J., & De Cuyper, N. (2016). Review of 30 years of longitudinal studies on the association between job insecurity and health and well-being: Is there causal evidence? *Australian Psychologist, 51*(1), 18–31. https://doi.org/10.1111/ap.12176

DOBRIAN, J. (2017). Un-leash the lease: Transitioning to a pet-friendly office. *Journal of Property Management, 82*(1), 14–18.

Duim, E., Guimaraes, M. T., Ornelas, R. H., Brito, N. T. G., Daher, G., Seko, C. Y., Borges-Junior, F. A., & Szlejfi, C. (2020). Caring for the workforce of a health system during the COVID-19 Epidemic in Brazil: Strategies of surveillance and expansion of access to care. *Journal of Occupational and Environmental Medicine, 62*(10), e593–e597. https://doi.org/10.1097/jom.0000000000002004

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology, 50*(5), 992–1003. https://doi.org/10.1037/0022-3514.50.5.992

Fox, J., Mayes, B. R., Schaul, K., & Shapiro, L. (2020). At least 97,000 people have died from the coronavirus in the U.S. 27 March. The Washington Post. https://www.washingtonpost.com/
Franklin, A. (2006). Be[a]ware of the dog”: A post-humanist approach to housing. *Housing, Theory and Society, 23*(3), 137–156. https://doi.org/10.1080/14036090600813760

Frone, M. R. (2004). Alcohol, drugs, and workplace safety outcomes: A view from a general model of employee substance use and productivity. In J. Barling & M. R. Frone (Eds.), *The psychology of workplace safety* (pp. 127–156). American Psychological Association.

Frone, M. R. (2008). Are work stressors related to employee substance use? The importance of temporal context assessments of alcohol and illicit drug use. *Journal of Applied Psychology, 93*(1), 199–206. https://doi.org/10.1037/0021-9010.93.1.199

Frone, M. R., Cooper, M. L., & Russell, M. (1994). Stressful life events, gender, and substance use: An application of tobit regression. *Psychology of Addictive Behaviors, 8*(2), 59–69. https://doi.org/10.1037/0893-164x.8.2.59

Fu, L., & Charoensukmongkol, P. (2021). Benefits of psychological capital on host country nationals’ support and burnout of Chinese expatriates in Thailand: The moderating effect of personal characteristics. *Asia-Pacific Journal of Business Administration*. Advance online publication. https://doi.org/10.1108/APJBA-06-2020-0181

Garrity, T. F., Stallones, L. F., Marx, M. B., & Johnson, T. P. (1989). Pet ownership and attachment as supportive factors in the health of the elderly. *Anthrozoös, 3*(1), 35–44. https://doi.org/10.2752/089279390787057829

Gottlieb, B. H., & Bergen, A. E. (2010). Social support concepts and measures. *Journal of Psychosomatic Research, 69*(5), 511–520. https://doi.org/10.1016/j.jpsychores.2009.10.001

Grunberg, L., Moore, S., & Greenberg, E. S. (1998). Work stress and problem alcohol behavior: A test of the spillover model. *Journal of Organizational Behavior, 19*(5), 487–502. https://doi.org/10.1002/(sici)1099-1379(199809)19:5<487::aid-job852>3.0.co;2-z

Guang, X., & Charoensukmongkol, P. (2020). The effects of cultural intelligence on leadership performance among Chinese expatriates working in Thailand. *Asian Business & Management, 21*, 1–23. https://doi.org/10.1057/s41291-020-00112-4

Günaydin, H. D. (2021). Impacts of personality on job performance through COVID-19 fear and intention to quit. *Psychological Reports, 124*(6), 2739–2760. https://doi.org/10.1177/00332941211040433

Hayes, J., Ward, C. L., & McGregor, I. (2016). Why bother? Death, failure, and fatalistic withdrawal from life. *Journal of Personality and Social Psychology, 110*(1), 96–115. https://doi.org/10.1037/spss0000039

Herrald, M. M., Tomaka, J., & Medina, A. Y. (2002). Pet ownership predicts adherence to cardiovascular rehabilitation 1. *Journal of Applied Social Psychology, 32*(6), 1107–1123. https://doi.org/10.1111/j.1559-1816.2002.tb01428.x

Herzog, H. (2011). The impact of pets on human health and psychological well-being: Fact, fiction, or hypothesis? *Current Directions in Psychological Science, 20*(4), 236–239. https://doi.org/10.1177/0963721411415220

Horowitz, S. (2008). The human—animal bond: Health implications across the lifespan. *Alternative & Complementary Therapies, 14*(5), 251–256. https://doi.org/10.1089/act.2008.14505
Hoyman, M., & Duer, H. (2004). A typology of workplace policies: Worker friendly vs. family friendly? Review of Public Personnel Administration, 24(2), 113–132. https://doi.org/10.1177/0734371x03260845

Huang, G. H., Wellman, N., Ashford, S. J., Lee, C., & Wang, L. (2017). Deviance and exit: The organizational costs of job insecurity and moral disengagement. Journal of Applied Psychology, 102(1), 26–42. https://doi.org/10.1037/apl0000158

Jiang, L., & Probst, T. M. (2017). The rich get richer and the poor get poorer: Country-and state-level income inequality moderates the job insecurity-burnout relationship. Journal of Applied Psychology, 102(4), 672–681. https://doi.org/10.1037/apl0000179

Johnson, V., & White, H. R. (1995). The relationship between work-specific and generalized stress and alcohol and marijuana use among recent entrants to the labor force. Journal of Drug Issues, 25(2), 237–251. https://doi.org/10.1177/002204269502500203

Jordan, P. J., Ashkanasy, N. M., & Hartel, C. E. (2002). Emotional intelligence as a moderator of emotional and behavioral reactions to job insecurity. Academy of Management Review, 27(3), 361–372. https://doi.org/10.5465/amr.2002.7389905

Kanat-Maymon, Y., Antebi, A., & Zilcha-Mano, S. (2016). Basic psychological need fulfillment in human–pet relationships and well-being. Personality and Individual Differences, 92, 69–73. https://doi.org/10.1016/j.paid.2015.12.025

Kausto, J., Elo, A. L., Lipponen, J., & Elovainio, M. (2005). Modering effects of job insecurity in the relationships between procedural justice and employee well-being: Gender differences. European Journal of Work and Organizational Psychology, 14(4), 431–452. https://doi.org/10.1080/13594320500349813

Kelemen, T. K., Matthews, S. H., Wan, M., & Zhang, Y. (2020). The secret life of pets: The intersection of animals and organizational life. Journal of Organizational Behavior, 41(7), 694–697. https://doi.org/10.1002/job.2465

Kessler, R. C., & McLeod, J. D. (1985). Social support and mental health in community samples. In S. Cohen & S. L. Syme (Eds.), Social support and health (pp. 219–240). Academic Press.

Krause-Parello, C. A. (2008). The mediating effect of pet attachment support between loneliness and general health in older females living in the community. Journal of Community Health Nursing, 25(1), 1–14. https://doi.org/10.1080/0737010701836286

Krause-Parello, C. A. (2012). Pet ownership and older women: The relationships among loneliness, pet attachment support, human social support, and depressed mood. Geriatric Nursing, 33(3), 194–203. https://doi.org/10.1016/j.gerinurse.2011.12.005

Kurdek, L. A. (2008). Pet dogs as attachment figures. Journal of Social and Personal Relationships, 25(2), 247–266. https://doi.org/10.1177/02654075070787958

Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. Springer.

Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. European Journal of Personality, 1(3), 141–169. https://doi.org/10.1002/per.2410010304

Lee, C., Huang, G. H., & Ashford, S. J. (2018). Job insecurity and the changing workplace: Recent developments and the future trends in job insecurity research. Annual Review of Organizational Psychology and Organizational Behavior, 5(1), 335–359. https://doi.org/10.1146/annurev-orgpsych-032117-104651
le Roux, M. C., & Wright, S. (2020). The relationship between pet attachment, life satisfaction, and perceived stress: Results from a South African online survey. *Anthrozoös, 33*(3), 371–385. https://doi.org/10.1080/08927936.2020.1746525

Levinson, B. M. (1962). The dog as a “co-therapist. *Mental Hygiene, 46*, 59–65.

Levinson, B. M., & Mallon, G. P. (1997). *Pet-oriented child psychotherapy*. Charles C. Thomas Publisher.

Lewis, A., Krägeloh, C. U., & Shepherd, D. (2009). Pet ownership, attachment and health-rated quality of life in New Zealand. *Electronic Journal of Applied Psychology: General Articles, 5*(1), 96–101. https://doi.org/10.7790/ejap.v5i1.138

Lin, W., Shao, Y., Li, G., Guo, Y., & Zhan, X. (2021). The psychological implications of COVID-19 on employee job insecurity and its consequences: The mitigating role of organization adaptive practices. *Journal of Applied Psychology, 106*(3), 317–329. https://doi.org/10.1037/apl0000896

Little, T. D., Rhemtulla, M., Gibson, K., & Schoemann, A. M. (2013). Why the items versus parcels controversy needn’t be one. *Psychological Methods, 18*(3), 285–300. https://doi.org/10.1037/a0033266

Liu, Y., Song, Y., Koopmann, J., Wang, M., Chang, C. H. D., & Shi, J. (2017). Eating your feelings? Testing a model of employees’ work-related stressors, sleep quality, and unhealthy eating. *Journal of Applied Psychology, 102*(8), 1237–1258. https://doi.org/10.1037/apl0000209

Maslach, C., & Jackson, S. E. (1986). *MBI: Maslach burnout inventory* (manual research ed.). University of California.

McConnell, A. R., Brown, C. M., Shoda, T. M., Stayton, L. E., & Martin, C. E. (2011). Friends with benefits: On the positive consequences of pet ownership. *Journal of Personality and Social Psychology, 101*(6), 1239–1252. https://doi.org/10.1037/a0024506

Meehan, M., Massavelli, B., & Pachana, N. (2017). Using attachment theory and social support theory to examine and measure pets as sources of social support and attachment figures. *Anthrozoös, 30*(2), 273–289. https://doi.org/10.1080/08927936.2017.1311050

Melson, G. F. (2003). Child development and the human-companion animal bond. *American Behavioral Scientist, 47*(1), 31–39. https://doi.org/10.1177/0002764203255210

Nebbe, L. (2001). The elementary school counselor and the HCAB. In: *Pet assisted therapy: A loving intervention and an emerging profession: Leading to a friendlier, healthier, and more peaceful world*. DJ Publications.

Palan, S., & Schitter, C. (2018). Prolific.ac—A subject pool for online experiments. *Journal of Behavioral and Experimental Finance, 17*, 22–27. https://doi.org/10.1016/j.jbef.2017.12.004

Peer, E., Brandimarte, L., Samat, S., & Acquisti, A. (2017). Beyond the Turk: Alternative platforms for crowdsourcing behavioral research. *Journal of Experimental Social Psychology, 70*, 153–163. https://doi.org/10.1016/j.jesp.2017.01.006

Preacher, K. J., & Selig, J. P. (2012). Advantages of Monte Carlo confidence intervals for indirect effects. *Communication Methods and Measures, 6*(2), 77–98. https://doi.org/10.1080/19312458.2012.679848
Puyod, J. V., & Charoensukmongkol, P. (2021). Effects of workplace rumors and organizational formalization during the COVID-19 pandemic: A case study of universities in the Philippines. *Corporate Communications: An International Journal, 26*(4), 793–812. https://doi.org/10.1108/ccij-09-2020-0127

Reisel, W. D., & Banai, M. (2002). Comparison of a multidimensional and a global measure of job insecurity: Predicting job attitudes and work behaviors. *Psychological Reports, 90*(3), 913–922. https://doi.org/10.2466/pr0.2002.90.3.913

Restubog, S. L. D., Scott, K. L., & Zagenczyk, T. J. (2011). When distress hits home: The role of contextual factors and psychological distress in predicting employees’ responses to abusive supervision. *Journal of Applied Psychology, 96*(4), 713–729. https://doi.org/10.1037/a0021593

Sayette, M. A. (1999). Does drinking reduce stress? *Alcohol Research & Health, 23*(4), 250-255. https://doi.org/10.1093/alcalc/34.1.78

Schreurs, B. H., Hetty van Emmerik, I. J., Günter, H., & Germeys, F. (2012). A weekly diary study on the buffering role of social support in the relationship between job insecurity and employee performance. *Human Resource Management, 51*(2), 259–279. https://doi.org/10.1002/hrm.21465

Shoss, M. K. (2017). Job insecurity: An integrative review and agenda for future research. *Journal of Management, 43*(6), 1911–1939. https://doi.org/10.1177/0149206317691574

Siegel, J. M. (1990). Stressful life events and use of physician services among the elderly: The moderating role of pet ownership. *Journal of Personality and Social Psychology, 58*(6), 1081–1086. https://doi.org/10.1037/0022-3514.58.6.1081

Simou, E., Britton, J., & Leonardi-Bee, J. (2018). Alcohol and the risk of pneumonia: A systematic review and meta-analysis. *BMJ open, 8*(8), Article e022344. https://doi.org/10.1136/bmjopen-2018-022344

Sverke, M., Hellgren, J., & Näswall, K. (2002). No security: A meta-analysis and review of job insecurity and its consequences. *Journal of Occupational Health Psychology, 7*(3), 242–264. https://doi.org/10.1037/1076-8998.7.3.242

The U.S. Bureau of Labor Statistics. (2020). *The employment situation – April 2020*. https://www.bls.gov/news.release/pdf/empsit.pdf (Accessed 25 May 2020).

Thoits, P. A. (1986). Social support as coping assistance. *Journal of Consulting and Clinical Psychology, 54*(4), 416–423. https://doi.org/10.1037/0022-006x.54.4.416

Todd, M. (2004). Daily processes in stress and smoking: Effects of negative events, nicotine dependence, and gender. *Psychology of Addictive Behaviors, 18*(1), 31–39. https://doi.org/10.1037/0893-1644.18.1.31

Toker, S., & Biron, M. (2012). Job burnout and depression: Unraveling their temporal relationship and considering the role of physical activity. *Journal of Applied Psychology, 97*(3), 699–710. https://doi.org/10.1037/a0026914

Vincent, A., Mamzer, H., Ng, Z., & Farkas, K. J. (2020). People and their pets in the times of the COVID-19 pandemic. *Society Register, 4*(3), 111–128. https://doi.org/10.14746/sr.2020.4.3.06

Vitus Vet. (2020). *Pets and covid*. https://vitusvet.com/pets-and-covid/ (Accessed 25 May 2020).

Volkow, N. D., Baler, R. D., Compton, W. M., & Weiss, S. R. (2014). Adverse health effects of marijuana use. *New England Journal of Medicine, 370*(23), 2219–2227. https://doi.org/10.1056/nejmra1402309
Walsh, F. (2009). Human-Animal bonds II: The role of pets in family systems and family therapy. *Family Process, 48*(4), 481–499. https://doi.org/10.1111/j.1545-5300.2009.01297.x

Wells, D. L. (2009). The effects of animals on human health and well-being. *Journal of Social Issues, 65*(3), 523–543. https://doi.org/10.1111/j.1540-4560.2009.01612.x

Wheeler, E. A., & Faulkner, M. E. (2015). The “pet effect”: Physiological calming in the presence of canines. *Society & Animals, 23*(5), 425–438. https://doi.org/10.1163/15685306-12341374

Wood, L., Giles-Corti, B., & Bulsara, M. (2005) (In this issue). The pet connection: Pets as a conduit for social capital? *Social Science & Medicine, 61*(6), 1159-1173. https://doi.org/10.1016/j.socscimed.2005.01.017

Wright, T. A., & Cropanzano, R. (1998). Emotional exhaustion as a predictor of job performance and voluntary turnover. *Journal of Applied Psychology, 83*(3), 486–493. https://doi.org/10.1037/0021-9010.83.3.486

Wu, C. S. T., Wong, R. S. M., & Chu, W. H. (2018). The association of pet ownership and attachment with perceived stress among Chinese adults. *Anthrozoós, 31*(5), 577–586. https://doi.org/10.1080/08927936.2018.1505269

Zasloff, R. L. (1996). Measuring attachment to companion animals: A dog is not a cat is not a bird. *Applied Animal Behaviour Science, 47*(1-2), 43–48. https://doi.org/10.1016/0168-1591(95)01009-2

Zhong, J. I. E., You, J., Gan, Y., Zhang, Y., Lu, C., & Wang, H. (2009). Job stress, burnout, depression symptoms, and physical health among Chinese university teachers. *Psychological Reports, 105*(3_suppl), 1248–1254. https://doi.org/10.2466/pr0.105.f.1248-1254

Zilcha-Mano, S., Mikulincer, M., & Shaver, P. R. (2011). An attachment perspective on human–pet relationships: Conceptualization and assessment of pet attachment orientations. *Journal of Research in Personality, 45*(4), 345–357. https://doi.org/10.1016/j.jrp.2011.04.001

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