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 the buffering model of social support 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 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

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The COVID-19 pandemic has yielded unprecedented challenges to organizations and employees. 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. Gallup (2020) reported that 25% of American workers fear they may lose their jobs due to the pandemic. The perception of job insecurity 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 (VitusVet, 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 the buffering model of social support (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; Zicha-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. 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., 2012). 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, 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 reduce 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 (Zicha-mano et al., 2012). 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 & Mallavara, 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 Buffering Model of Social Support and 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 the buffering model of social support (Cohen & Wills, 1985) to theorize about the moderating role of pet attachment support. The buffering model of social support suggests that social support enables individuals to cope with stressful events (Thoits, 1986) and reduces one's perception that a situation is stressful; thus, individuals are less reactive to perceived stress (House, 1981). In particular, the buffering effects are more salient under stressful life conditions (Cohen & Wills, 1985). 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 the buffering model of social support, 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 (Collis & McNicholas, 1998; Bekker & Mallavara, 2019). 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 the buffer model of social support, 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 one-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%. 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, α=.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 "feeing stressful", "feeling restless", "feeling worthless", and "feeling in panic".

Pet attachment support (Time 2, α=.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 six-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, α=.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, α=.93). Depression was assessed with the eight-item scale by Toker and Biron (2012). Participants were asked, "During the past six 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 ($\triangle b = -.37$, $p < .05$). 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 ($\triangle b = -.28$, $p < .01$). 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 ($\triangle b = -.26$, $p < .05$), 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 ($\triangle b = -.28$, $p < .01$). Hence, Hypothesis 4b is supported. In summary, Hypotheses 3a, 3b, 4a and 4b are supported, but Hypothesis 3c is not supported.

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 effect of job insecurity on 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 (2017), 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. 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 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 important 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 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. 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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Table 1

Means, Standard Deviations and Correlations

	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	.13	(-)										
3. Marital status	0.71	0.45	.00	.03	(-)									
4. WFH percentage	68.82	42.07	.18*	-.01	.16*	(-)								
5. Job insecurity (T1)	2.15	1.02	.04	.15*	-.08	.11	(.93)							
6. Stress (T1)	2.02	0.82	.13	-.09	-.08	.12	.41**	(.82)						
7. Pet attachment support (T2)	4.27	0.74	.15*	-.04	-.03	-.08	-.06	.01	(.94)					
8. Alcohol use (T2)	1.53	0.89	-.05	.01	-.03	.06	.00	.16*	-.13	(-)				
9. Marijuana use (T2)	1.22	0.62	.11	-.16*	.11	-.01	.11	.25**	.02	.22**	(-)			
10. Cigarette use (T2)	1.16	0.56	-.10	-.01	.01	-.17*	-.01	.19**	.02	.12	.21**	(-)		
11. Emotional exhaustion (T2)	2.18	1.01	.06	-.05	-.17*	.07	.46**	.57**	-.09	.19**	.14	.11	(.95)	
12. Depression (T2)	2.07	0.94	.19*	-.17*	-.10	.13	.35**	.69**	-.08	.12	.20**	.15*	.66**	(.93)

Note. N= 187 employees. *SD* =standard deviation; T1=Time 1, Time 2= Time 2, one 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.
* $p<.05$, ** $p<.01$

Table 2

Confirmatory Factor Analysis Results

Model	χ^2	df	$\Delta\chi^2$	Δdf	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.

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.

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	**-.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	**-.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	**-.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	**-.11**	**[-.20, -.02]**

Note. CI= confidence interval; Bootstrap samples =20,000; The numbers in bold indicate significant estimates.

Figure 1

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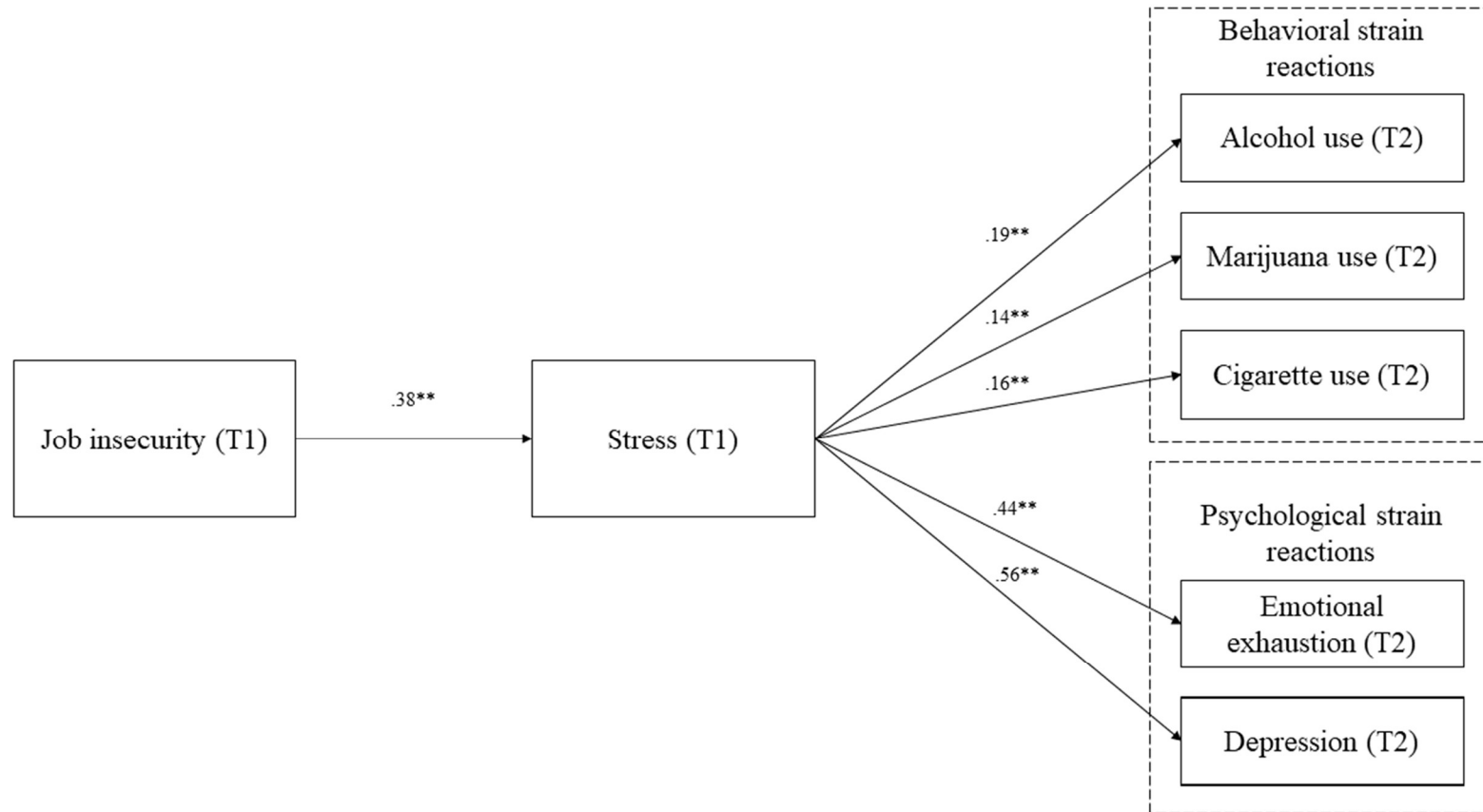
Note. Unstandardized path coefficients are reported. For the ease of readability, we omitted the path estimates from control variables in the model. T1=Time 1, T 2= Time 2.
* *p* < .05, ** *p* < .01.

Figure 2

The Results for Moderated Mediation Model
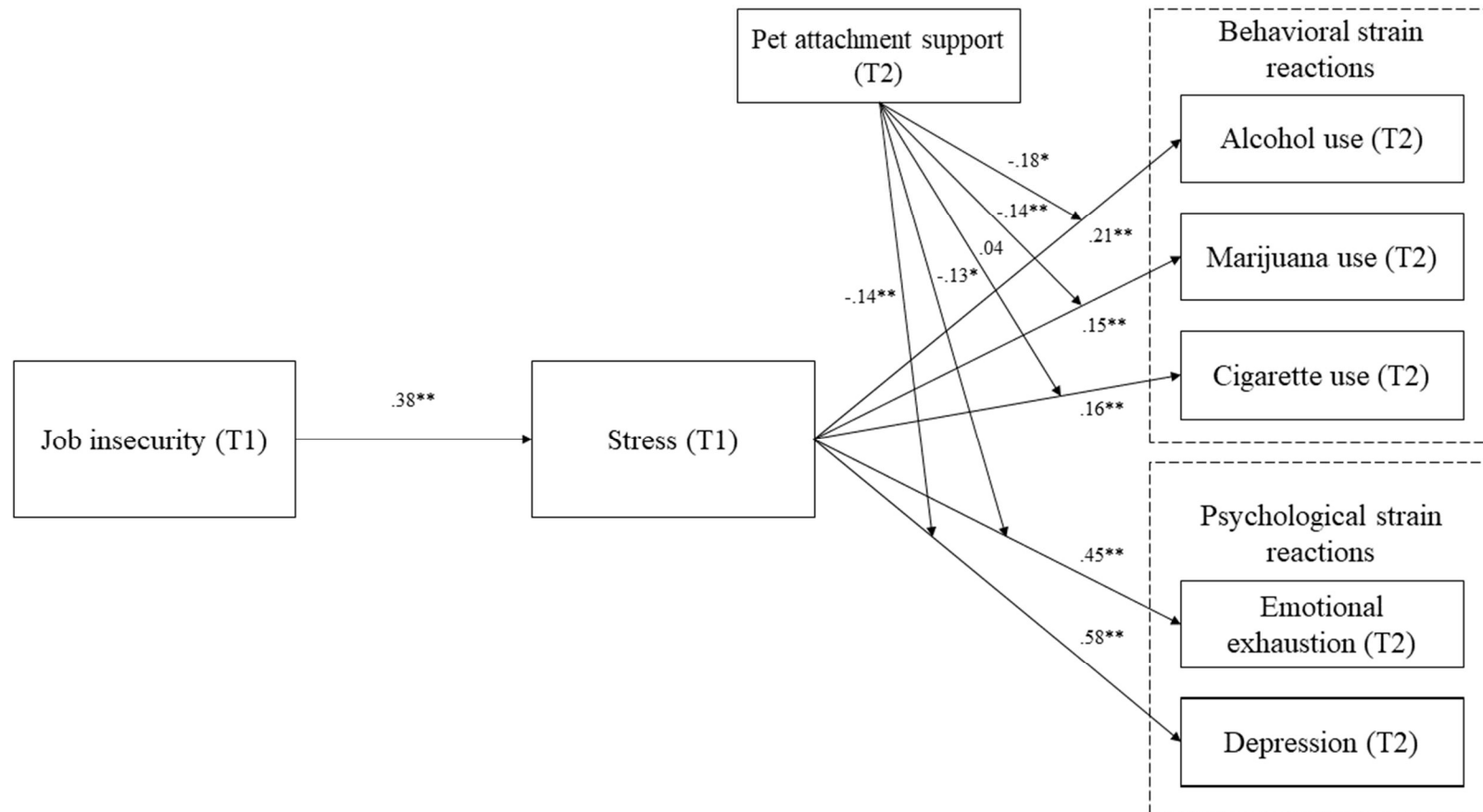
Note. Unstandardized path coefficients are reported. For the ease of readability, we omitted the path estimates from control variables in the model. T1=Time 1, Time 2= Time 2
$^*p$ < .05, $^{**}p$ < .01.

Figure 3

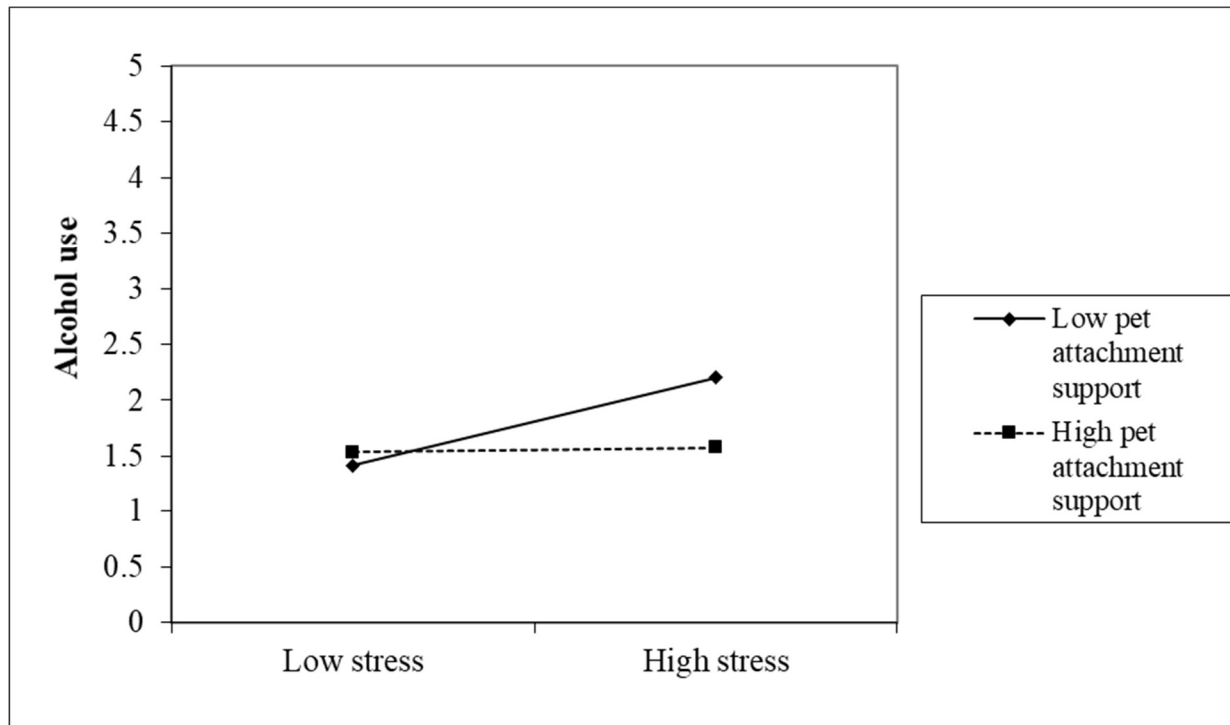*The Interactive Effect of Stress and Pet Attachment Support on Alcohol Use*

Figure 4

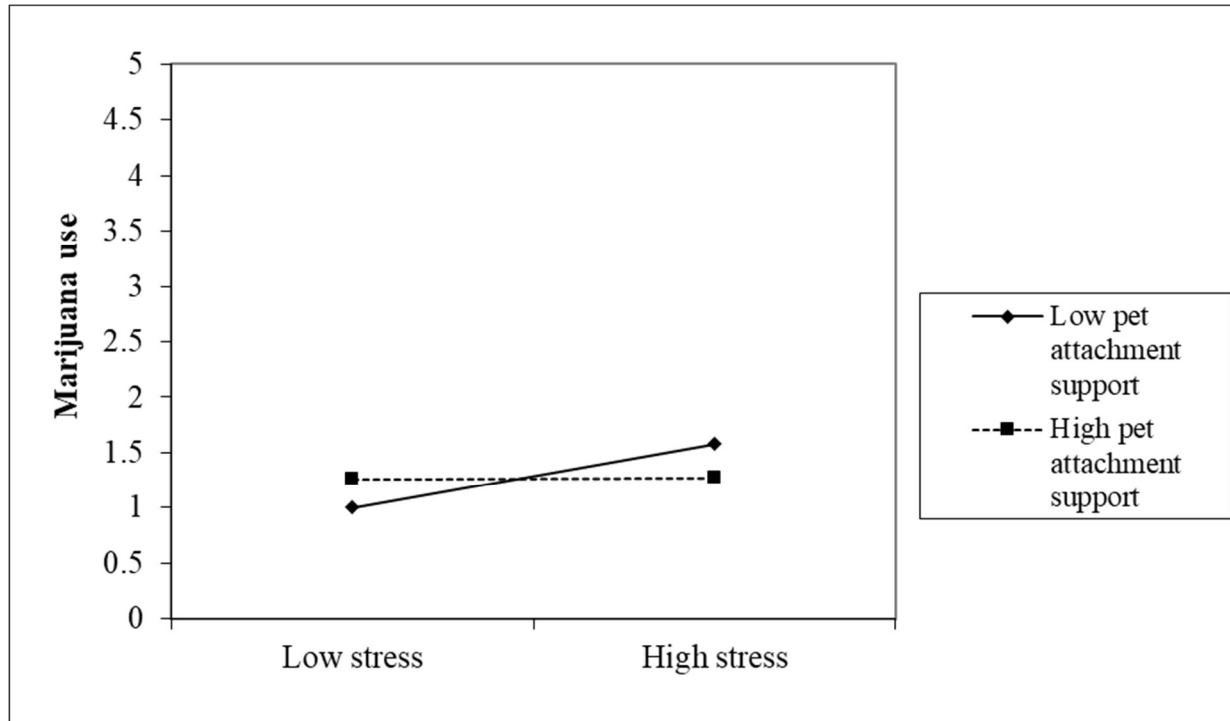*The Interactive Effect of Stress and Pet Attachment Support on Marijuana Use*

Figure 5

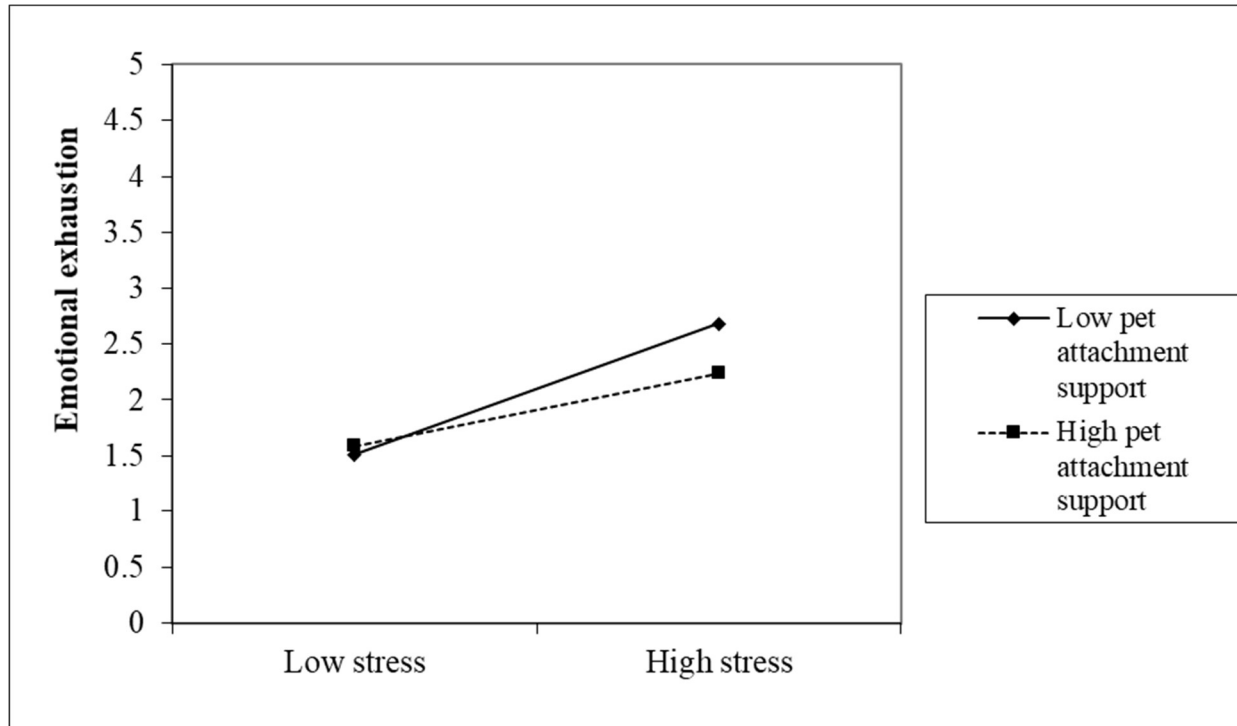*The Interactive Effect of Stress and Pet Attachment Support on Emotional Exhaustion*

Figure 6

The Interactive Effect of Stress and Pet Attachment Support on Depression