WORKING WITH WILDLIFE: THE EFFECTS OF STRESSORS AND RESOURCES ON BURNOUT AND ENGAGEMENT FOR ANIMAL CARETAKERS

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ABSTRACT

The present study was designed to identify the impacts of stressors experienced by animal caretakers within zoos, aquariums, and shelters. To analyze these impacts, I administered a survey to individuals within this population which assessed interactions with environmental, social, and financial stressors for animal caretakers in relation to engagement and burnout. In total, 112 animal caretakers participated in the study. Results supported that physical stressors were most commonly encountered within the workforce, but coworker conflict was the only stressor to have consistent significant effects on burnout and engagement. Specifically, more coworker conflict was associated with more burnout and less engagement. In terms of resources, safety climate and work centrality were not found to moderate the effects of stressors on any outcomes. Based on these results, interventions may need to focus on addressing coworker conflict, as well as stressors unique to these occupations that are harder to capture with traditional measures.

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LIST OF ABBREVIATIONS

B, Unstandardized coefficient

COR, Conservation of Resource Model

F, F statistic

IRB, Institutional Review Board

JDR, Job Resource Model

M, Mean

p, Probability value

PIA, Perceived income adequacy

R^2, Variance explained

SD, Standard deviation

SE, Standard error

UTC, University of Tennessee at Chattanooga

LIST OF SYMBOLS

*, Statistically significant at a $p < .05$ level

=, Equal to

<, Less than

CHAPTER I

INTRODUCTION

The average full-time American worker spends 8.5 hours at work a day “. This amount of time spent at work, along with the nature of the demands experienced at work, can contribute to work-related strain that affects both the physical and mental well-being of an individual (Hobfoll, 1989; Kemsley, 2018). The dynamic process of experiencing stressors and adaptively coping with stress is an important consideration for organizations because of the impact stressors can have on employee and organizational outcomes (e.g., health problems, commitment, burnout, absenteeism, and costs associated with health problems (Latack, 1986; Sonnentag & Frese, 2012). Due to the growing acknowledgement of the impact of stress, there has been increased attention directed toward stress in both the research and popular media communities (Kemsley, 2018; Sonnentag & Frese, 2012). Though stress has been studied for a wide range of industries, relatively few studies have focused on animal caretakers (Bunderson & Thompson, 2009; Kemsley, 2018; Thompson & Bunderson, 2003).

Animal caretakers within zoos and aquariums represent a unique set of occupations that are understudied. Animal caretakers are classified within O*NET (2019), the nation’s primary database of occupational information, as nonfarm animal caretakers. Organization settings in this category are varied including kennels, animal shelters, zoos, circuses, and aquariums. Work-related tasks within this title range from direct care (training, feeding, bathing, and cleaning animal quarters) to standard organizational practices (ordering animal care products, educating

the public, moving supplies, and making appointments; (National Center for O*NET Development, 2019; US Department of Labor, 2018). According to the US Bureau of Labor Statistics (2018) there were 296,400 jobs within this category in 2016, with an expected 22% increase before 2026. Salaries within this profession range from $19,370 - $48,738, with the median wage being $28,920 (Payscale, 2019). Given the relatively low salary for workers in this occupation, some researchers have focused on understanding relationships between financial stress and calling orientation (i.e., feeling the job is part of one's purpose in life), among zoo keepers (Bunderson & Thompson, 2009). There has been limited research, however, regarding stress associated with administrative duties, environmental conditions, work relationships, and other role stressors that are likely experienced by animal caretakers (Kemsley, 2018). In acknowledging this gap, I developed a survey study collecting information on a broad range of stressors to provide an overview of common stressful stimuli that impact employee wellbeing in the form of engagement and burnout in this unique field. The ultimate goal of the study was for these results to provide a foundational understanding of the experience of stressors among animal caretakers, that would serve as a basis for developing effective preventative and reactive intervention strategies for this unique population.

Defining Stressors, Stress, and Strain

Throughout the research literature, stress has been defined in multiple ways (Cooper, Dewe, & O'Driscoll, 2001; Hobfoll, 1989; Jex, Beehr, & Roberts, 1992). The most common descriptions of stress are the stimulus, response, and stimulus-response definitions. The stimulus definition implies that stress is a type of force, which acts on an individual and requires that individual to adapt. The response definition describes stress as an individual's reaction to a

particular stressful condition. The third and most commonly supported definition of stress is the stimulus-response definition, which defines stress as the *process* in which the demand of the environment (stressor) negatively impacts an individual, resulting in a strain response (Cooper et al., 2001; Jex et al., 1992).

Stressors and strain are the primary concepts in the stimulus-response definition. Specifically, stressors are defined as the conditions or situations, which require some sort of adaptation from the employee (Bliese, Edwards, & Sonnentag, 2017; Jex et al., 1992). Stressors can be represented by a single event (e.g., an accident at work) or by multiple incidents over time (e.g., tension that results from a coworker who procrastinates on all assignments; (Kahn & Byosiere, 1992; Kanner, Coyne, Schaefer, & Lazarus, 1981). In their work, Elliot and Eisdorfer (1982) identified four types of stressors which include: acute time limited stressors (short in duration; e.g., waiting for a shot from a doctor), stressor sequences (e.g., losing a job), chronic intermittent stressors (e.g. quartile performance reviews), and chronic stressors (long in duration; e.g., financial struggles). Stressors can be complex, in that an individual can experience multiple stressors at one time and the severity of stressors can vary across occupations and individuals (Johnson et al., 2005).

Stressors can begin a process. As stressful stimuli are presented, an individual is prompted to respond in order to reach a desired consequence (e.g., the stimuli to cease). If the stimuli remain, the prolonged efforts to respond can cause an individual to experience stress, and if left unresolved over time, strain. Strain is defined as the outcome or reaction to a stressor that has activated the stress process (Sonnentag & Frese, 2012). Typically, within the literature three types of strain reactions have been defined. These common reactions are psychological (e.g., feeling anxious), cognitive (e.g. impaired thinking), or behavioral (e.g. fatigue) responses (Bliese

et al., 2017; Hobfoll, 2002). Each of these reactions can ultimately be seen in changes in work-related attitudes and states associated with well-being, such as engagement and burnout (Bakker, Demerouti, & Sanz-Vergel, 2014).

Defining Engagement and Burnout

Burnout is used to describe a state of mental weariness (Schaufeli & Bakker, 2004), consisting of three core dimensions categorized as exhaustion, cynicism, and reduced efficacy (e.g., individuals do not feel like they are doing good work anymore) that can occur within a job (Maslach, Schaufeli, & Leiter, 2001; Schaufeli, Bakker, & Salanova, 2006). Engagement has been described as the opposing construct from burnout (Maslach et al., 2001). In fact, vigor and dedication are direct opposites to the two core characteristics of burnout (exhaustion and cynicism). Thus, unlike those who are encountering burnout, those maintaining engagement can feel more connected to work and more confident in their abilities to perform (Schaufeli et al., 2006). One important response that has been associated and observed with burnout and engagement is turnover intention (Lee & Ashforth, 1996; Schaufeli & Bakker, 2004), or "a conscious and deliberate willfulness to leave the organization" (Tett & Meyer, 1993, p. 262).

Theoretical Orientations in Relation to Stress and Resources

The Job Demands-Resources model and Conservation of Resources model are two prominent theories that can aid in explaining how job demands may have a negative impact on employee health and well-being. The two theories focus on resources as an important component in adapting to stressors. Resources are broadly defined as objects, personal characteristics, conditions, or energies that provide instrumental (for instance, attention to detail is a resource to

a surgeon) and symbolic (e.g., a sense of calling is a resource to a teacher) value to individuals (Hobfoll, 1989). In the JDR model, resources that can be provided by the work environment are the focus, as described in the next section.

Job Demands-Resources Model

One well-supported theory in relation to organizational stress research is the Job Demands-Resources model (JDR), devised by Demerouti et al. (2001). The JDR model connects job characteristics to burnout and engagement. In this model, influencing factors are placed in two categories. The first category is job demands, which are defined as physical, social, or organizational aspects of a job that require increased physical or social effort from the employee (Bakker, Demerouti, & Euwema, 2005; Demerouti et al., 2001). The impact of demands can result in physiological (e.g., fatigue) and psychological (e.g., perceived stress) costs to an individual. Overall, these outcomes can further lead to burnout.

The second component of the JDR model is job resources. Job resources refer to physical, psychological, social, or organizational aspects of a job that aid in achieving goals, stimulating personal growth/development, or reducing job demands (Demerouti et al., 2001). A lack of resources with high demands can lead to disengagement and burnout (Bakker et al., 2005; Demerouti et al., 2001). Alternatively, the presence of several job-related resources such as support, technology, and control can be used to meet job demands within the organization or at the individual level, resulting in better outcomes (Bakker & Demerouti, 2007). When available, job resources can buffer the impact of demands by motivating the employee to achieve organizational goals. Motivation to achieve organizational goals can then lead to organizational commitment and work engagement (Schaufeli & Bakker, 2004).

Conservation of Resources

The second theoretical framework that I used as a foundation for the present study was the Conservation of Resources model (COR), which adds further understanding of how resources play a role in the experiences of demands and adaptation using available resources. COR is described as a cyclical process of resource loss and gain that occurs for an individual (Hobfoll, 2001, 2002). The COR model describes the idea that strain may occur when resources are used up or have the potential to be lost. One premise of this model is that the harm of losing a resource has more psychological impact than achieving a new resource. A process known as the *primacy of resource loss*, aligned with loss salience in cognitive psychology (Cacioppo & Gardner, 1999; Hobfoll, 1989; Tversky & Kahneman, 1974).

When an individual is not directly confronted by stressors, they will participate in a process known as *resource investment* to protect against and recover from resource loss, or to gain resources. It is when an individual is not able to gain resources or loses a great deal of resources that they are vulnerable to experiencing strain. Further, losing resources may make individuals more vulnerable to losing additional resources (e.g. losing a job can leave an individual vulnerable to losing his/her house, car, etc. if he/she does not find another). Over time, strain that comes from resource loss can be associated with burnout (Bakker et al., 2014). Alternatively, gaining resources makes it easier to gain more resources (e.g., getting a promotion will give an employee confidence in himself/herself and more money). To combat resource loss and/or gain, individuals will utilize their own resources, or the resources allotted to them through the environment (Hobfoll, 1989).

Expected Stressors for Animal Caretakers

Based on the job duties and interactions listed on O*NET (2019) for animal caretakers, I selected three specific stressor themes that would be most relevant to the tasks carried out in the field. The first focal category that was important to investigate was *environmental stressors*; that is, demands and constraints that an employee faces within the physical work environment (Latack, 1986). Encounters and accidents dealing with animals in this occupation are often displayed in the media, highlighting the environmental stressors and safety threats that can be involved in animal caretaking occupations. One widespread example would be the death of a trainer at Sea World, which made national headlines. The trainer was drowned by one of the show orcas (Couwels & Todd, 2010). More recently in 2019, an employee in Jacksonville, FL was struck by a rhino horn during a routine training session, which sent her to the hospital (Bourne, 2019).

According to the Association of Zoos and Aquariums (2020) and the Health & Safety Executive (2012), a guidance document for the operation of zoos, there are safety measures in place requiring zoos to maintain a health and safety policy for employees. Organizations must follow these procedures to maintain a safe environment and to limit risks. Even with these regulations in place, animal caretakers could still encounter unforeseen situations that can cause physical injury, disease, or fatality or simply experience worry over the potential threats, given the level of exposure to physical demands.

Environmental stressors are not limited to safety risks on the job. Among these are a subcategory known as physical stressors, aversive physical working conditions. These adverse conditions can include factors such as noise, temperature, dirt, hazardous substances, and physically demanding work (Sonnentag & Frese, 2012). In occupations with a particularly high

risk of environmental stress, such as police officers and industrial workers, employee awareness of stressors and an understanding of their experience of stress can be useful in preventive action toward stress management (Leiter, Zanaletti, & Argentero, 2009; Taverniers, Smeets, Van Ruysseveldt, Syroit, & Von Grumbkow, 2011). Bakker et al. (2005) also demonstrated a relationship between environmental stressors and burnout within the JDR model. In their study physical demands were related to exhaustion, but autonomy and social support acted as resource buffers.

The second focal category of stressor in the present study is *social stressors* that result from interactions with others, and can be experienced as animosity, conflicts with colleagues, and interpersonal conflict (Almeida, 2005; Sonnentag & Frese, 2012). Social factors are important to consider within any work environment due to the impact that the desire to be accepted has on an individual's wellbeing (Leary & Baumeister, 2000). Dormann and Zapf (2002) argue that social stressors (e.g., isolation, conflict, negative group climate) can strongly affect strain and depression. Further, Gump and Matthew (1999) suggested that chronic social stress increases individual vulnerability for future threats.

Finally, *financial stressors* result from issues in obtaining or having money to pay bills or provide for basic needs (Falconnier & Elkin, 2008). Pay is a critical factor when considering an employee's membership with a company, as access to income is a primary function of work (Gupta & Shaw, 1998). Financial resources can be considered energies, which are valued resources within Hobfoll's (1989) COR model, discussed previously. Financial resources can also facilitate the attainment of other valued environmental and psychological resources (e.g., a house, self-esteem). Studies have shown a link between financial distress and employee wellbeing (Boyce, Brown, & Moore, 2010; Deaton, 2008; Shaw & Gupta, 2001). Shaw and

Gupta (2001) found that the level of financial dependency (one method for measuring financial stress) of employees can impact the relationship between pay attitudes and physiological (e.g., fatigue), psychological (e.g., burnout), and behavioral (e.g., turnover) outcomes of an employee.

Financial stressors are important to consider within animal care workers due to the relatively low compensation received (National Center for O*NET Development, 2019). Bunderson and Thompson (2009) found that although zookeepers receive low wages, most employees interviewed felt that their job was their calling. The power of calling described within the field of zookeepers implies that employee calling is able to take priority over money and thus could mean that calling is able buffer the strain of financial stressors. It is still important to understand the weight that financial stressors play on employees over time, even if calling does serve as a buffer. Financial stressors are not directly addressed in some primary tests of the JDR model (Bakker et al., 2005). However, by analyzing financial stressors within the JDR framework, findings could support an extension to the model and add knowledge to the demands-resources literature. For instance, I would expect pronounced effects of financial stressors on engagement and burnout because of the resource cycles that could be created by financial stressors. That is, having sufficient income affords one access to other material resources and can reinforce non-tangible resources, like esteem.

To be able to offer the most actionable findings, organizations and researchers must understand the unique stressors experienced in a given population. This concept of identifying unique stressors is necessary for animal caretakers. Therefore, in addition to determining the prevalence of environmental, social, and financial stressors, examining unique stressors through open-ended items provided more insight for organizations employing animal caretakers. An

understanding of unique stressors can provide specific action points for possible resources and/or coping and stressor management strategies.

Expected Resources for Animal Caretakers

Along with examining stressors within the animal caretaker profession, I evaluated the value of two resources that may be particularly relevant. The first resource that I believed would moderate the relationship between environmental stressors and burnout/engagement within the animal caretaker industry was *organizational safety climate*. Safety climate is an individual's perceptions of policies, procedures, and practices of safety in a work environment. Zohar (2010) provides further support that measuring safety climate can help in understanding social dynamics of the workplace that contribute to safe work practices and reduce the likelihood of accidents. Safety climate is believed to influence beliefs, attitudes, and behavioral norms within the organization (Parker, Lawrie, & Hudson, 2006; Zohar, 2010). Safety climate could influence safety behavior, as well as attitudes toward the organization (Huang et al., 2016) within the role of animal caretakers and perceptions of environmental stressors (e.g., higher confidence in personal safety during animal encounters and procedures).

In this study, I specifically focused on organizational safety climate as a resource that buffers the effects of environmental stressors on employee burnout and engagement. A perceived concern for safety from the organization should provide a valuable resource that matches the workers' resource need when they encounter environmental stressors. Alternatively,

encountering many environmental demands without support for safety from the organization may lead to frustration and burnout for the employees.

While the perception of safety is important, another important factor that needs to be considered with animal caretakers is their *desire to care for animals*. As discussed earlier, research has shown support that many animal caretakers have a calling disposition toward the work they do (Bunderson & Thompson, 2009; Thompson & Bunderson, 2003). I believed that work centrality may similarly moderate relationships between financial stressors and outcomes, while allowing for a broader assessment of connection to work without having an emphasis on a prepositioned purpose or one's destiny, as is the case with other measures of calling. For example, an item used in a calling measure from prior studies would be " the work I do feels like my calling in life" (Bunderson & Thompson, 2009, p. 56). These items have an existential tone that may not be as relatable for all participants. Work centrality is a broader construct, defined as the degree that an individual believes their job plays an important role in their lives (Bal & Kooij, 2011; Walsh & Gordon, 2008). The concept is considered fairly stable for the individual and can range from high (individual sees work as important in life and a main part of their identity) to low (work is not viewed as important in the individuals life; (Hirschfeld & Feild, 2000).

Work centrality is important as it is related to the level of involvement and engagement of employees (Bal & Kooij, 2011; Hirschfeld & Feild, 2000). Within the field of animal caretakers this concept is important in that an employee's degree of identification with their role may impact burnout and engagement. For instance, a zookeeper who feels very connected to their role because they believe that their work is helping the species in their care survive will be more likely to care about the nature of their work and less likely to quit, as opposed to another

who sees their work as more janitorial in nature and not part of their personal identity. Given the similarity in the constructs of calling and work centrality, I propose that where there is a high degree of calling, there should be a high degree of work centrality, which would produce similar motivation that reduces the impacts of stressors.

The Present Study

Based on the possible impacts of stress that have been reviewed, an organization that employs animal caretakers, who face unique job demands, may benefit from considering the effects of stressors within their industry. Understanding the prevalence and impact of these stressors could provide insight as to the resources that may best support employee needs. The framework I used analyzes the three stressors (environmental, social, and financial) in relation to outcomes of engagement and burnout. The effects of two resources were also considered, with work centrality and safety climate being moderators of the effects of the stressors on engagement and burnout outcomes. The models for this study are summarized visually in the following figures.

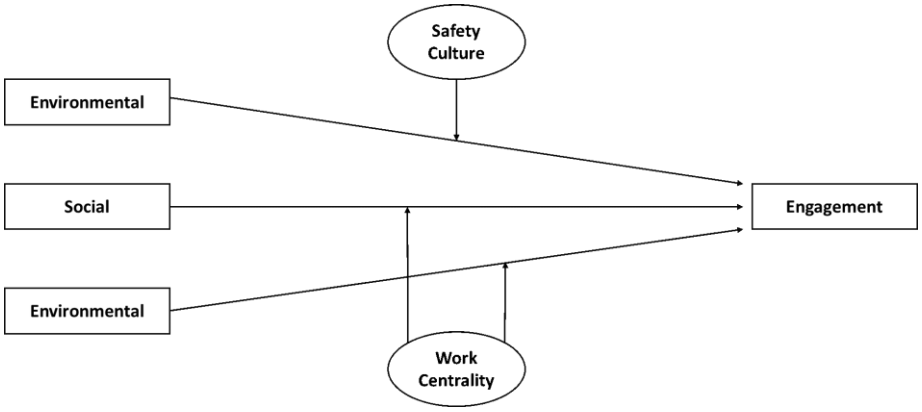

Figure 1 Proposed Model with Engagement Outcome

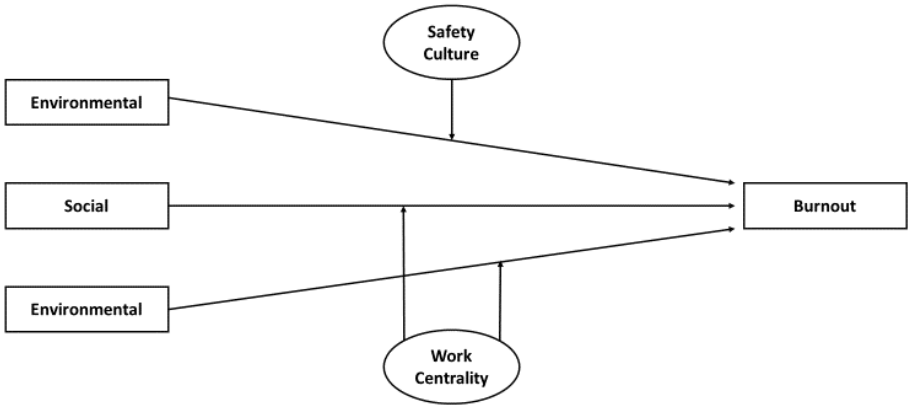

Figure 2 Proposed Model with Burnout Outcome

In the present study, I examined two exploratory research questions and four hypotheses. The two research questions concerned the general prevalence of stressor types and the unique stressors that may be encountered by animal caretakers. Although the low salaries associated with this work have been the driving force behind some research among zookeepers (e.g., financial stress and calling; Bunderson & Thompson, 2009), a broader assessment of stressors within the profession had not been conducted. This relative lack of research attention to stressors among the profession of animal caretakers provided a basis for two research questions within the study.

Research question 1: Which of the three assessed stressor types (environmental, social, or financial) are most prevalent in a sample of animal caretakers?

Research question 2: What are some of the unique stressors encountered by animal caretakers that are not captured by the existing measures of environmental, social, and financial stressors?

In addition to examining the prevalence of stressors within the field, I examined the relationships between stressors and two indicators of well-being. The four study hypotheses listed below align with the COR and JDR framework, in assessing the main effects of stressors, as well as the moderating effects of resources, in relation to burnout and engagement. I specifically examined the potential moderating effects of (a) organizational safety climate on the relationship between environmental stressors and the outcomes of burnout and engagement, and (b) work centrality on the relationships between social and financial stressors and the outcomes of burnout and engagement. These hypotheses, which were depicted in Figure 1 and 2, are also summarized in the following statements.

Hypothesis 1 (a): Each stressor (environmental, social, and financial) is related negatively to engagement.

Hypothesis 1 (b): Each stressor (environmental, social, and financial) is related positively to burnout.

Hypothesis 2 (a): Work centrality moderates the effect of social stressors on engagement. Social stressors will have a less negative impact on engagement if participants report stronger work centrality.

Hypothesis 2 (b): Work centrality moderates the effect of social stressors on burnout. Stronger work centrality weakens the relationship between social stressors and burnout.

Hypothesis 3 (a): Work centrality moderates the relationship between financial stressors and engagement. Financial stressors will have a less negative impact on engagement if workers have high work centrality.

Hypothesis 3 (b): Work centrality moderates the relationship between financial stressors and burnout. Higher work centrality weakens the relationship between financial stressors and burnout.

Hypothesis 4 (a): Safety climate moderates the effect of environmental stressors on burnout. Safety climate will weaken the impact of environmental stressors on burnout.

Hypothesis 4 (b): Safety climate moderates the effect of environmental stressors on engagement. Safety climate will weaken the impact of environmental stressors on engagement.

CHAPTER II

METHODOLOGY

Participants

Prior to data collection, the study was approved by the University of Tennessee at Chattanooga Institutional Review Board (IRB). In order to obtain a diverse range of experiences, the opportunity to participate in the survey was sent to various zoo, aquarium, and animal shelter organization contacts within the United States directly by email, online organization forum, or Facebook. Contacts for each of the organizations were asked to share the survey with all employees who encountered animals as part of their job. Participants were not compensated for their contributions, but organizations who offered to forward the survey were offered a summary of the findings. Also, upon request, two unique links were provided to organizations that desired a summary of employee responses specific to their organization. These surveys that were unique to a single organization encouraged participation among larger facilities because they would be able to receive feedback specific to their organization. In total, 112 participants took the survey and were used in analysis.

Procedure

After clicking on the survey link, but prior to beginning the survey, participants were provided a consent form (Appendix B) stating the level anonymity of their responses (depending

on whether they were part of an organization specific survey) and their ability to drop out at any time. To continue the participants had to check a box labeled “continue”. Participants then proceeded to respond to a variety of multi-item scalar measures and open response questions regarding their stressors, resources, engagement, burnout, and other unique experiences. After completion, participants were brought to a conclusion screen which thanked them for their time, provided a brief conclusion statement on their contribution to research, and presented the contact information for myself and my faculty advisor.

Of the 112 participants, 105 provided complete responses, which were all analyzed. Participants in the study consisted of 95 females (84.8%) and 17 males (15.2%). Also, the population for this survey was mostly white with 106 (94.6%) identifying with this category, compared to six (5.4%) nonwhite. Overall, ages ranged from 21 to 66 with the mean age at 33.91 and a standard deviation of 8.70. Meanwhile, the mean work tenure of participants ranged from 0 years (new employees) to 27 years, with a mean average of 7.45 years and a standard deviation of 6.36. I also collected open responses for job title. Here the most reported job title was zookeeper with 89 (80%) participants, followed by animal care technicians with five participants (5%), and directors with four (4%) participants.

Measures

The survey was distributed online using the QuestionPro internet survey platform. The questionnaire included items on demographic information as well as items from various scales targeting at the proposed stressors, resources, and outcomes of burnout and engagement (Appendix C). Below is a description of each scale used.

Demographics

Specific demographic items included gender, ethnicity, tenure, current organization type (e.g., shelter, zoo), current income, and current position title. In testing the hypotheses, I specifically controlled for age, tenure, gender, and ethnicity (dummy coded for two categories of white and non-white), as these could be relevant factors affecting both burnout and engagement.

Environmental Stressors

Environmental stressors were measured using the Physical Exposure Scale (Sinclair, Martin, & Sears, 2010), with two additional items being included to capture unique forms of environmental exposure that animal caretakers may face on the job (e.g. being in an enclosure with an animal). The Physical Exposure scale asks for the frequency that an employee encounters 11 physical demands in their daily work (e.g. working in an area with poor lighting). Exposure to these physical demands are rated on a frequency scale ranging from *a few times a year or never* (1) to *many times each day* (5). Responses were averaged to create an exposure score, where higher values indicate exposure to more physical demands. Sinclair, Martin, and Sears (2010) found a somewhat low, but acceptable level of internal consistency of .69. However, because the construct is formative in nature, I would not necessarily expect high inter-item correlations. In the current study, however, Cronbach's alpha was generally high, .79. This could simply indicate the common occurrence off many of the stressors in this particular job.

Social Stressors

Social stressors were measured using the Interpersonal Conflict at Work Scale (ICAWS), which consists of four items that focus on getting along with others at work (See Appendix B;

Spector & Jex, 1998). Four items are rated on a frequency scale ranging from *Never* (1) to *Very often* (5). Responses to the items were averaged, where higher scores reported higher instances of social stressors. A sample item is "How often are people rude to you at work?". The scale has demonstrated acceptable reliability, with Cronbach's alpha of .74. I used two different adaptations of the scale to have participants rate interactions with customers (guests) and coworkers separately. The Cronbach's alpha for customer related questions was .76, while the alpha for coworkers was .81.

Financial Stressors

To uncover financial stressors within the job I used the Perceived Income Adequacy scale (Cheung, 2014; Sears, 2008). The scale measures the financial comfort or discomfort that the employee experiences by asking questions on the ability to afford financial wants (e.g., My current income allows me to have the lifestyle I want) and needs (e.g., I can afford the food I need to survive). Responses were noted using a five-point frequency scale, ranging from *Strongly disagree* (1) to *Strongly agree* (5). In this scale, higher average scores reported higher income adequacy or comfort and lower scores represented income inadequacy, supporting financial stressors. The scale has previously demonstrated acceptable reliability, with Cronbach's alpha of .92 for current needs and .91 for current wants (Cheung, 2014). In the present study, Cronbach's alpha was .90.

Engagement

Employee engagement was measured by using an adapted version of the Utrecht engagement scale (Schaufeli et al., 2006). The scale consists of seven items which ask about the

occurrence of positive emotion toward work (e.g., When I get up in the morning, I feel like going to work). Responses to these items range from *Never* (1) to *Always* (5). Responses to the items were averaged, with higher scores represented higher amounts of work engagement. The scale has demonstrated acceptable reliability with a Cronbach alpha ranging from .80 to .90 across various occupations in Norway (Nerstad, Richardsen, & Martinussen, 2010). In the present study, Cronbach's alpha was .85.

Burnout

To measure burnout, I used the Oldenburg Burnout Inventory (Demerouti, Bakker, Vardakou, & Kantas, 2003; Demerouti, Mostert, & Bakker, 2010). This scale consists of 16 items relating to burnout, measured as exhaustion and disengagement (e.g., There are days when I feel tired before I arrive at work). Responses for each item ranged on a four-point agreement scale from *Strongly Agree* (1) to *Strongly Disagree* (4), with lower scores representing higher burnout in the original format. To ease the interpretation of the items, all items were reverse scored so that in the analyses, higher average scores represented more burnout. Demerouti et al. (2003) found that the scale had sufficient reliability, with an alpha of .73 for the exhaustion scale and .83 for the disengagement scale. In the present study, I wanted to look at exhaustion and disengagement separately to allow for the highest degree of clarity, so I separated the conducted two analyses, one for each subscale, to test each hypothesis concern burnout. Cronbach's alpha for both exhaustion and disengagement measures were .81.

Safety Climate

To measure safety climate, I used a safety culture scale developed by Arboleda, Morrow, Crum, and Shelley (2003). The scale was created specifically for drivers and management within the transportation industry. The Cronbach's alpha reliability ranged from .88 to .91 when administered to different groups of employees within the transportation industry. The scale consists of 4 items which relate to organizational emphasis on safety, which could reasonably apply to a number of industry settings. A sample modified item from this scale is "Employees' safety is an important concern at this company." Responses were made within a seven-point rating scale ranging from *Completely Disagree* (1) to *Completely Agree* (7). Responses to the items were averaged, with high scores representing higher levels of perceived safety culture. In the present study, Cronbach's alpha was .90.

Work Centrality

Work centrality was measured with three items from Bal and Kooij (2011). Each item was answered on a five-point Likert scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (5). Responses to the items were averaged, with higher scores supporting higher amounts of work centrality. Statements revolved around emphasis on work such as, "The major satisfaction in my life comes from my work." The scale has demonstrated an acceptable level of reliability, with Cronbach's alpha being .75 (Bal & Kooij, 2011). In the present study, Cronbach's alpha was .82.

Open-Response

Finally, at the end of the survey, I included open-ended questions, asking employees to record any additional stressors, as well as personal or organizational resources that were not represented on the survey scale items. Example questions include “What are two to three aspects of your job that you feel make your work uniquely stressful (i.e., it’s different from most other jobs)?” and “How do you personally cope with stress? Provide two to three examples.”

CHAPTER III

RESULTS

Data for this project were gathered through a self-report survey administered using QuestionPro. I first removed any participants who did not provide any responses on the survey. The following analyses were conducted from the remaining data set (N = 112). I used SPSS to conduct all statistical analyses, including initial descriptive statistics and frequencies, a multiple regression analysis to determine prevalence of each stressor, repeated measure analyses of variance (ANOVAs) to test the first set of hypotheses, and hypotheses two through four required the use of PROCESS V3.3 macro developed by Hayes (2018).

Descriptive Statistics

Prior to hypothesis testing, I examined basic correlations among all study variables and computed basic descriptive statistics. These are displayed in Table 1. These correlations provided initial support that each stressor was associated with engagement and burnout. Specifically, customer stress was associated with engagement and physical stressors were associated with disengagement. Safety climate and work centrality were both associated with less burnout and more engagement.

Hypothesis Tests

Research question one concerned whether there were mean differences between the three stressors by reviewing the prevalence of each. While I conceptually considered social stressors as one category, I did choose to split the measure into two categories of social stress from coworkers and customers for more accuracy on the source of the perceived stress. I also re-coded Perceived Income Adequacy (PIA) for this analysis so that higher scores represented a less adequate income; this conceptualization of the variable was in line with higher scores indicating more stress. To compare the mean differences (given all stressors were rated on one to five scales), I conducted a repeated measures ANOVA. Mauchly's test of sphericity was found to be significant, therefore I used the Greenhouse-Geisser estimate. The results provided by the Greenhouse-Geisser test suggested a significant difference in perceived occurrence of stress based on the type of stressor, F (2.69, 296.26) = 271.75, $p < .05$. Pairwise comparisons also supported that all stressors were significantly different from one another ($p < .05$). Physical stressors (M = 3.57, SD = .61) represented the most commonly encountered stressors closely followed by inadequate income (M = 3.30, SD = .77), and customer (M = 1.76. SD = .56) and coworker (M = 1.95, SD = .65) social stressors were the least commonly encountered.

In hypothesis one, I predicted that the three different stressors would have a significant impact on employee's engagement and burnout. To test this hypothesis, I used a multiple regression analysis with physical stressors, social stressors (from coworkers and from customers), and PIA as predictors of each outcome. I controlled for age, tenure, gender and ethnicity, entering them in the first step of the regression and the stressors in the second step of the regression. The full models are summarized in Table 2.

The first part of the hypothesis examined all predictors and control variables in relation to engagement. Together the control variables and stressors explained 27% of the variance in engagement. Examining the regression model, physical stressors, PIA and social stressors in relation to customers were not significant unique predictors. However, social stress related to coworkers had a negative, significant relationship with engagement, B = -.43, SE = .09, $p < .05$. Coworker stressors uniquely explained 17% of the variance in engagement.

The second portion of the first hypothesis reviewed the relationship between the described variables and the two dimensions of burnout assessed, exhaustion and disengagement. The same control variables were entered in step 1, with the stressors in step 2. Together the control variables and stressors explained 31% of the variance in exhaustion. Examining the regression model, perceived income adequacy and social stressors in relation to customers were not significant unique predictors. Social stress related to coworkers had a positive relationship with exhaustion, which was significant, B = .33, SE = .07, $p < .05$. Coworker stressors uniquely explained 17% of the variance in exhaustion. Physical stressors also had a significant and positive relationship to exhaustion, B = .16, SE = .07, $p < .05$. Physical stressors uniquely explained 4% of the variance in exhaustion. When examining disengagement as a component of burnout, the control variables and stressors together explained 29% of the variance. Examining the regression model, physical stressors, perceived income adequacy and social stressors in relation to customers were not significant unique predictors. However, social stress related to coworkers did significantly predict and positively relate to disengagement, B = .37, SE = .08, $p < .05$. Coworker stressors uniquely explained 17% of the variance in disengagement.

To determine whether there were interaction effects of work centrality and safety climate I ran a series of moderated regression models using PROCESS V 3.4. The full summary of the

findings can be found in Table 3. First, I examined how stressors may interact with work centrality to predict exhaustion. When considering coworker stress and work centrality, neither predictor was significantly related to exhaustion and there was no significant interaction between the predictors. It is interesting to note that coworker stress was a predictor of exhaustion when controlling for the other stressors in the previous multiple regression analyses, while controlling for work centrality resulted in a non-significant relationship. Similarly, when considering customer stress and work centrality, neither predictor was significantly related to exhaustion and there was no significant interaction between the predictors. There was also no significant relationship to exhaustion between PIA and work centrality as predictors or together as an interaction. In relation to exhaustion, I also examined how physical stressors may interact with safety climate. When considering physical stress and safety climate, neither predictor was significantly related to exhaustion and there was no significant interaction between the predictors.

Next, I examined how stressors may interact with work centrality to predict disengagement. When considering coworker stress and work centrality, only coworker stress was a significant predictor of disengagement, $B = .47$, $SE = .24$, $p = .05$. The interaction between coworker stress and work centrality was not significant. When considering customer stress and work centrality, neither predictor was significantly related to disengagement and there was no significant interaction between the predictors. Regarding PIA and work centrality, again neither predictor was significantly related to disengagement and there was no significant interaction between the predictors. In relation to disengagement, I also examined how physical stressors may interact with safety climate. When considering physical stress and safety climate, neither

predictor was significantly related to disengagement and there was no significant interaction between the predictors.

Finally, I examined engagement as the outcome. In the model with coworker stress and work centrality, coworker stress was marginally related to engagement, B = -.52, SE = .27, p = .06, but the main effect of work centrality and the interaction effect were both non-significant. Similarly, when considering customer stress and work centrality, neither predictor was significantly related to engagement and there was no significant interaction between the predictors. Regarding PIA and work centrality, again neither predictor was significantly related to engagement and there was no significant interaction between the predictors. In relation to engagement, I also examined how physical stressors may interact with safety climate. When considering physical stress and safety climate, neither predictor was significantly related to engagement and there was no significant interaction between the predictors.

In sum, these analyses do not support Hypotheses 2 - 4 that the resources of work centrality and safety climate could buffer the effects of certain stressors on burnout or engagement. Though the stressors and resources mentioned were largely non-significant as unique predictors in these models, it is worth noting that the overall models did explain significant amounts of variance (See Model R^2 values in Table 3).

Research Question 2 was analyzed by reviewing the open-ended responses. Using thematic analysis, I identified the most mentioned unique stressors, coping strategies, and organizational coping resources. All frequencies of reported themes can be found in Table 4 and 5. The first question in this section stated “We have asked you about a number of stressful aspects of work already. What else causes you to feel stressed at work?” I found that the theme most often described for unique stress dealt with work overload, with 35% of respondents

reporting this issue followed by supervisor/leadership stress reported by 26% of respondents. The next question asked, “What are two to three aspects of your job that you feel make your work uniquely stressful (i.e., it’s different from most other jobs)?”, and the most common themes that arose dealt with animal care (48% responded in this category), environment/safety (44% responded in this category), and work overload (27% responded in this category).

After asking about unique stressors I then analyzed responses dealing with rewards of the job and resources to cope. My first question in this area asked “What are two to three aspects of your job that you feel make your work uniquely rewarding?”, where I found that the most commonly reported rewards dealt with interacting with animals at 57% of responses and guest interactions/education at 35% responses. The second question asked, “How do you tend to personally cope with your work-related stress?” Here I found that 47% of respondents reported using an active activity or hobby to deal with stress from their job, followed by 37% reporting that they communicated with others to ease stress. Finally, I analyzed the organizational help for coping with stress by asking, “What are two to three examples of ways the organization helps you with your stress levels?” I found that the most common response at 33% reported consisted of organizations not providing coping mechanisms, and 18% reporting specific events for employees, such as occasional chair massages.

CHAPTER IV

DISCUSSION

The purpose of the present study was to determine prevalent stressors that affect animal caretakers, as well as matching resources that can support these workers. I also examined if safety climate and work centrality moderated the relationship with environmental, financial, and social stressors and engagement and burnout. I found that physical stressors are most prevalent, which does correspond to the common job duties required of animal caretakers that are physical in nature. In future research, a larger focus on animal interaction and review of perceived excitement or anxiety toward working with animals could also be beneficial. Perhaps even working with dangerous animals produces a surge of adrenaline that is not experienced as particularly stressful.

When relating the stressors to burnout and engagement, physical stressors contributed to the exhaustion dimension of burnout, but only social stress from coworkers related to both dimensions of burnout and engagement. Therefore, physical demands do logically relate to a depletion of energy, but the stressors that seem to have a physical and emotional impact are those that are interpersonal. It is interesting that social stressors are least encountered, yet coworker stress appears to take the most substantial toll on employees when it does occur. Perhaps this finding demonstrates that because coworker stress is not a common encounter and that it is not as expected as other physical stressors involved as part of the job (e.g., you face the realization that

a snake will try to bite you and thus prepare), it greatly affects the employee when it does occur. For instance, animal caretakers may expect that coworkers would provide support and when it goes against their expectation, it has a greater impact on their work-related attitudes, whereas they often know what stressors to expect environmentally and financially.

Perceived safety climate and work centrality were not significant moderators of the relationships between stressors and burnout or engagement, as was expected (Parker et al., 2006; Zohar, 2010). It was surprising that work centrality did not moderate the outcomes within the present study considering calling has previously been supported as a buffer to financial stress (Bunderson & Thompson, 2009). The results could be due to the measures used not fitting the occupation as well, where calling may be more appropriately used than work centrality. As discussed earlier, the two measures differ in context, where calling has a more existential tone and creates the idea of a more destined purpose; work centrality just focuses on importance of a job in an individual's life. Perhaps for this population, calling is a better representation of feeling. Another measure that could be beneficial to review is identity salience as opposed to work centrality and calling.

Safety climate not being significant was also surprising, as I would expect that the more emphasis on safety would aid in environmental stress. However, these findings could be due to a majority focus on physical demands (e.g., lifting, standing) as opposed to perceived danger. Alternatively, a more personalized measure that incorporates more potential harm from animal interactions and which focuses on the specific species worked with could show different results. Finally, one main consideration is that perhaps other resources are needed to help employees cope with their job stressors, especially with social stressors which showed a greater impact than originally thought. Perhaps there is a greater need for more social resources, like social support,

that employees can utilize to work through stress as opposed to or in addition to their personal work identity and organizational resources.

Within the qualitative analysis I reviewed open responses associated with highest stressors, personal coping, and organizational resources perceived by employees to determine if the present study aligned with similar themes. I grouped responses into themes and coded all individual responses to determine prevalence across participants. Items were put into buckets based on theme, and similar themes were later grouped together for more clarity. Here I found that the most prevalent stressors discussed revolved around work overload and supervisor or leadership stress. In reviewing perceived rewards of the job, I found that interactions with animals and the public were mentioned most often. Overall, the findings from the qualitative responses provided insight to potential future research on unique stressors and resources within the field. The qualitative findings add to the quantitative findings, adding that work overload and animal interactions may be important stressors to understand. I also did not predict guest interactions being perceived as a reward, in fact I framed guest interactions in terms of stress associated with customers. The surprising nature of these findings points to the need to understand education and guest interactions as an opportunity to support workers and reduce stress. Finally, I did not consider leadership at all in this assessment for length reasons, but I do think that this would prove beneficial in future research as a component of social stress and could give us a better look at the experiences of animal caretakers.

Implications

The present study has provided insight for current organizations employing animal caretakers to reference in determining potential risks for employee burnout. Results from this study support focusing on coworker relational aspects could be beneficial for an organization to consider as a stress intervention or prevention technique. Though organizations may have relatively low incidents of co-worker conflict, they may be able to take proactive measures to talk about conflict resolution strategies. Proactive efforts could help prepare for incidents when they do occur so that the impact on employees is more minimal. Also, due to the information captured through qualitative measures that were not captured in the quantitative analysis, it could be important to create personalized assessments of unique stressors and resources for these types of fields.

Limitations and Future Research

There were several limitations to this study regarding number of participants and diversity. As mentioned earlier, recruiting enough participants was difficult partially due to the timing (I recruited over the holiday season) and due to our survey consisting of 99 questions that took an average of 20 minutes to complete, with no compensation. The survey has a dropout rate of 39 participants. For future research, it is important to address the reasoning for this, whether that be the length of the survey, lack of interest in the survey, or the lack of incentive. It is also important to note that half of the responses were gathered from participants working at two specific zoos, so findings could be impacted by specific organizational components. Recruiting employees from more animal care facilities could increase the generalizability of the findings. Finally, the sample was not racially or ethnically diverse, with 85% of participants identifying as

females and 95% of participants reporting White/Caucasian as their ethnicity. Though the sample itself was not diverse, it does seem to representative of the field itself which is described as being predominantly white and female in informal sources (The Zookeeper, 2018). Still, it is important to note that racioethnic homogeneity could be an issue in that different cultural views and beliefs are muted and thus not emphasized within the results. This in turn could play a significant role for these individuals in the organization.

Finally, a consideration for interpretation of the results is that the survey was sent to various positions within the broad field of animal caretakers, who interact with different types of animals and people daily. While a vast majority of participants were zookeepers, there were some responses from individuals who still worked with more domesticated animals both within the zoos and in other organizational types (e.g., humane societies). Future research could benefit from further reviewing experiences within specific occupations in order to determine more context-specific recommendations. Because the field of animal caretaker is broad and the specific tasks associated with each industry will differ, it will be important to begin to narrow the field of study and clarify the specifics found through organization type. Also, it could be beneficial to create more occupational specific items in relation to measures, such as safety climate, as the current measure is broad.

Conclusion

The present study measured three specific stressors found within occupational research in order to gain a base of foundational knowledge on the field of animal caretakers, such as zookeepers. Prior to this study, I had not found any research which had collected a broad range of information on stressors and resources experienced by those within zoo and aquarium

organizations, as well as animal shelters and veterinarian clinic studies. The findings in this study did support that environmental factors in the form of physical stressors were encountered most often, followed by perceived income inadequacy. In reviewing the impact of each stressor, there was a supported significant impact of coworker stressors on engagement and disengagement. However, no other stressor held a significant relationship to either engagement, disengagement, or exhaustion with or without a moderator of work centrality or safety climate. These findings support co-worker relationships as a meaningful area of intervention. Future studies may benefit from even broader assessments of unique stressors to understand pertinent predictors of burnout and engagement.

TABLES

Table 1 Summary Descriptive Statistics, Intercorrelations, and Scale Reliabilities for Study Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Physical Stress	3.57	0.61	(.80)												
2. Coworker Stress	1.95	0.65	.24	(.81)											
3. Customer Stress	1.76	0.56	.20	.22	(.78)										
4. PIA	3.30	0.77	.25	.24	-.09	(.90)									
5. Organizational Safety Climate	4.20	1.48	-.27	-.41	-.17	-.18	(.90)								
6. Work Centrality	3.05	0.87	.13	-.02*	.14	-.10	.22	(.82)							
7. Engagement	4.04	0.62	-.12	-.48	.00*	-.19	.44	.32	(.85)						
8. Exhaustion	2.68	0.54	.31	.47	.10	.15	-.43	-.18	-.53	(.81)					
9. Disengagement	2.27	0.47	.05	.47	.08	.17	-.50	-.31	-.72	.57	(.82)				
10. Age	34.25	8.84	-.14	.04*	-.06	-.04*	.05	-.14	-.04*	-.19	-.17	-			
11. Tenure	7.62	6.49	-.09	.09	.05	-.11	-.01*	-.22	-.13	-.08	-.05	.73	-		
12. Gender	1.85	0.36	-.14	-.19	-.15	-.05	.13	.02*	.21	.00*	-.20	-.02*	.01*	-	
13. Ethnicity	1.05	0.21	.09	-.12	.08	.02*	.11	-.03*	.04*	-.03*	-.09	-.09	-.10	.10	-

*$p < .05$. N range = 112
Notes. Gender coded as 1 = male, 2 = female. Ethnicity coded as 1 = white, 2 = non-white. PIA = Perceived Income Adequacy
Scale range: Physical stressor 1 - 5, Social (Coworker & Customer) 1 – 5, PIA 1 - 5 , Safety Climate 1 -7 , Work centrality 1 – 5, Engagement 1 - 5, Exhaustion 1 - 4, Disengagement 1 - 4.

Table 2 Multiple Regression Models Predicting Burnout (Exhaustion, Disengagement) and Engagement

	Exhaustion		Disengagement		Engagement	
	B	SE	B	SE	B	SE
Step 1						
Age	-0.02	0.01	-0.02*	0.01	0.01	0.01
Gender	-0.01	0.13	-0.30*	0.14	0.36*	0.16
Ethnicity	-0.04	0.20	-0.18	0.22	-0.10	0.26
Tenure	0.01	0.01	0.01	0.01	-0.02	0.01
Model R^2	.04		.09		.07	
Step 2						
Physical Stressors	0.16*	0.07	-0.10	0.08	0.01	0.09
Coworker Conflict	0.33*	0.07	0.37*	0.08	-0.43*	0.09
Customer Conflict	-0.05	0.08	-0.03	0.09	0.17	0.10
Perceived Income Adequacy	0.01	0.05	-0.05	0.06	0.04	0.07
Model R^2	.31		.29		.27	

*$p < .05$. N range = 112

Notes. Gender coded as 1 = male, 2 = female. Ethnicity coded as 1 = white, 2 = non-white. Unstandardized coefficients (B) are reported in the table.

Table 3 Moderation Results Between Stressors, Resources, and Outcomes of Exhaustion, Disengagement, and Engagement

	Exhaustion		Disengagement		Engagement	
	B	SE	B	SE	B	SE
Model 1						
Coworker Stress	0.18	0.22	0.47ᵗ	0.24	-0.52ᵗ	0.27
Work Centrality	-0.19	0.14	-0.13	0.15	0.18	0.18
Interaction	0.05	0.07	-0.03	0.07	0.02	0.08
Model R^2	.25		.31		.33	
Model 2						
Customer stress	0.00	0.34	0.08	0.37	-0.30	0.43
Work centrality	-0.16	0.19	-0.22	0.21	0.09	0.25
Interaction	0.03	0.11	0.01	0.12	0.08	0.14
Model R^2	.05		.11		.11	
Model 3						
PIA	0.02	0.21	-0.12	0.23	-0.1	0.26
Work Centrality	-0.01	0.17	-0.2	0.19	0.03	0.22
Interaction	-0.03	0.06	0.01	0.07	0.07	0.08
Model R^2	.05		.11		.14	
Model 4						
Physical Stress	0.18	0.21	0.21	0.24	-0.01	0.29
Safety Climate	-0.15	0.17	0.05	0.19	0.18	0.23
Interaction	0.00	0.05	-0.07	0.05	0.00	0.06
Model R^2	.23		.27		.19	

*p < .05, **p < .001, ᵗp < .10. N = 105.
Notes: Unstandardized coefficients(B) are reported.

Table 4 Thematic Analysis on Stressors

Question	Themes Collected	Sample Responses	N	% of responses
We have asked you about a number of stressful aspects of work already. What else causes you to feel stressed at work?	Work overload	Lack of time to complete certain tasks	39	35.14%
	Supervisor/leader stress	Upper management- curators, directors, etc. not listening to keeper concerns or ignoring 'red flags' in buildings that are grossly outdated.	29	26.13%
	Coworker/staffing	Coworkers arguing about decisions with our animals.	23	20.72%
	Public	Interacting with the public.	2	1.80%
	Org level	Red-tape--this is the first time I have worked at a government facility. There are many rules that do not apply well to our situation. Things move very slowly.	20	18.02%
	Other	My own crippling self-doubt about my skills	19	17.12%
	Animal care	Wellness of sick animals and death.	15	13.51%
	lack of staff	Being unable to take time off due to being short staffed,	25	22.52%
	Money & job security	I feel stressed at work currently, because in spite of receiving a fair salary, I cannot afford to live in this community.	11	9.91%
	Environment and safety	Working with dangerous animals is a big stress	9	8.11%

Table 4, cont'd

Question	Themes Collected	Sample Responses	N	%
What are two to three aspects of your job that you feel make your work uniquely stressful (i.e., it's different from most other jobs)?	Work overload	I feel like I don't have enough time or resources to completely give all of my animals the best welfare possible every single day.	31	27.93%
	Supervisor/leader stress	Feeling like management does not actually care about the wellbeing of our animals, they only care about making sure the public *thinks* we have good welfare so that ticket sales stay high.	5	4.50%
	Coworker/staffing	If it was not for the people I work with my job would not be stressful	11	9.91%
	Public	Dealing with the public and their ignorance of animal and habitat issues that affect our world. Dealing with 'anti-zoo' people who have a misguided, misinformed or willfully ignorant view of what we do to help save wildlife and their habitats.	4	3.60%
	Org level	Lots of policies and procedures that set back or delay projects that would be beneficial for they animals. For example, prolonged approval procedure for training projects or enrichment items.	8	7.21%
	Other	In animal rescue, there is stress because you can feel that you aren't making a difference. No matter how many animals you rescue, there are that many more still needing rescue.	7	6.31%
	Animal care	Worrying about an animal's health if injured or ill	54	48.65%
	Lack of staff	Understaffed team	6	5.41%
	Money & job security	Financial stress from a uniquely low paying job that requires significant education and experience.	9	8.11%
	Environment and safety	Working in unsanitary environments	49	44.14%

Table 5 Thematic Analysis on Resources

Question	Themes Collected	Sample Response	N	%
What are two to three aspects of your job that you feel make your work uniquely rewarding?	Guest interactions/education	Guest interactions that feel like they changed someone's perspective of zoos	39	35.14%
	Conservation	Contributing to the conservation of wildlife.	29	26.13%
	Improving animal welfare	Seeing an animal enjoying an enrichment that I made	19	17.12%
	Interacting with animals	Being able to closely interact with exotic animals	64	57.66%
	Learning	I learn something new every day.	6	5.41%
	Work associates	My co-workers are like a second family.	2	1.80%
	Work Environment	Love the zoo environment in general.	3	2.70%
	Other	Recognition from the community is rewarding as well.	7	6.31%
	Work experiences	I get to be with live animals. I see and do things some people never experience or even know about.	5	4.50%
How do you tend to personally cope with your work-related stress? Provide two to three examples.	Active activities/hobbies	Daily gym time immediately after work help A LOT	53	47.75%
	Medication/therapy	Therapy - once a month.	7	6.31%
	Avoidance/think about quitting	Take time to myself or try not to think about it.	10	9.01%
	Drinking	Beer	17	15.32%
	Seclusion/shutdown/crying	Shutting down/being quiet, going home and sleeping	10	9.01%

Table 5, cont'd

Question	Themes Collected	Sample Response	N	%
How do you tend to personally cope with your work-related stress? Provide two to three examples.	Animal focus	Spending time with my cat and two dogs,	10	9.01%
	Self-care/relaxation	I try to set aside one of my days off each week for pampering/relaxation (facial, nails, etc).	25	22.52%
	Communicating with others	Venting to close friends.	42	37.84%
	Sleep	Sleep	6	5.41%
	Other	Pray	9	8.11%
What are two to three examples of ways the organization helps you with your stress levels?	Events	Occasionally they provide chair massages, but they are always at times when zookeepers are busy trying to get animals out for public view. So, we never get to participate in that.	20	18.02%
	Time and task flexibility	We are provided with an enormous amount of PTO, but due to being constantly under-staffed we are unable to use it.	15	13.51%
	services	There is an employee assistance program that can refer you to psychiatric help and offers monthly tips of how to deal with stress in a newsletter.	10	9.01%
	Social support	Encouraging management team	13	11.71%
	They do not	I can think of none. We are scolded by our leader for admitting we are stressed.	37	33.33%
	Other	I am also provided with housing, so I do not have to stress over finding a place to live/ paying rent.	5	4.50%

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APPENDIX A

IRB APPROVAL LETTER & CHANGE APPROVAL

THE UNIVERSITY OF TENNESSEE
CHATTANOOGA

Institutional Review Board
Dept 4915
615 McCallie Avenue
Chattanooga, TN 37403
Phone: (423) 425-5867
Fax: (423) 425-4052
instrb@utc.edu
http://www.utc.edu/irb

TO: Destiny Burns **IRB # 19-129**
Dr. Kristen Jennings Black

FROM: Lindsay Pardue, Director of Research Integrity
Dr. Amy Doolittle, IRB Committee Chair

DATE: 10/9/2019

SUBJECT: IRB #19-129: Working with Wildlife: The Effects of Stressors and Resources on Burnout and Engagement for Animal Caretakers

Thank you for submitting your application for exemption to The University of Tennessee at Chattanooga Institutional Review Board. Your proposal was evaluated in light of the federal regulations that govern the protection of human subjects.

Specifically, 45 CFR 46.104(d) identifies studies that are exempt from IRB oversight. The UTC IRB Chairperson or his/her designee has determined that your proposed project falls within the category described in the following subsection of this policy:

46.104(d)(2)(i): Research only includes educational tests, surveys, interviews, public observation and recorded information cannot readily identify the subject (directly or indirectly/linked)

Even though your project is exempt from further IRB review, the research must be conducted according to the proposal submitted to the UTC IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit an Application for Changes, Annual Review, or Project Termination/Completion form to the UTC IRB. Please be aware that changes to the research protocol may prevent the research from qualifying for exempt review and require submission of a new IRB application or other materials to the UTC IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the UTC IRB as soon as possible. Once notified, we will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event.

Please refer to the protocol number denoted above in all communication or correspondence related to your application and this approval.

For additional information, please consult our web page http://www.utc.edu/irb or email instrb@utc.edu.

Best wishes for a successful research project.

THE UNIVERSITY OF TENNESSEE CHATTANOOGA

Institutional Review Board
Dept 4915
615 McCallie Avenue
Chattanooga, TN 37403
Phone: (423) 425-5867
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TO: Destiny Burns **IRB # 19-129**
Dr. Kristen Jennings Black

FROM: Lindsay Pardue, Director of Research Integrity
Dr. Amy Doolittle, IRB Committee Chair

DATE: 12/20/2019

SUBJECT: IRB #19-129: Working with Wildlife: The Effects of Stressors and Resources on Burnout and Engagement for Animal Caretakers

The University of Tennessee at Chattanooga Institutional Review Board has reviewed and approved the following changes for the IRB protocol listed above:

- Adding the ability to give organizations that ask for it results from the study specific to their organization. No identifying information will be collected from individuals.
- Additional questions added to the survey
- Slight wording change to the consent form to address survey results being provided to organizations.

Please keep in mind that all research must be conducted according to the proposal submitted to the UTC IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit an Application for Changes, Annual Review, or Project Termination/Completion form to the UTC IRB. Please bear in mind that significant changes could result in having to develop a new application for submission and approval. Your protocol will be automatically closed at the end of the proposed research period unless a change request application is submitted. No research may take place under a closed or expired protocol.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the UTC IRB as soon as

possible. Once notified, we will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event.

Please refer to the protocol number denoted above in all communication or correspondence related to your application and this approval.

For additional information, please consult our web page http://www.utc.edu/irb or email instrb@utc.edu.

Best wishes for a successful research project.

APPENDIX B

INFORMED CONSENT FORM

INFORMED CONSENT

Work experiences survey for employees who work with wildlife

You are being invited to participate in a research study about your experiences at work, including things you find challenging or resources that help you to do your job well. This study is being conducted by Destiny Burns (pld696@mocs.utc.edu), an Industrial-Organizational Psychology Master's student, and Dr. Kristen Black (kristen-j-black@utc.edu; 423-425-5479) at the University of Tennessee at Chattanooga.

You were selected as a possible participant in this study because of your association with a wildlife facility.

The questionnaire will take about 30-45 minutes to complete. It will include a variety of questions on stressful aspects of your job, how you view your work, your perceptions of safety, and a few other topics.

This survey is anonymous. You will not be asked to provide your name anywhere on the survey. Any identifiable information automatically recorded by the survey platform, such as IP address, will not be retained with the survey responses. Therefore there will be no identifiable information associated with your individual response.

Your participation in this study is voluntary. By clicking "Continue" you are voluntarily agreeing to participate and you are acknowledging that you are 18 years of age or older. You are free to stop answering questions at any time or to decline to answer any particular question you do not wish to answer for any reason. If you are younger than 18, do not proceed.

Research at the University of Tennessee at Chattanooga involving human participants is carried out under the oversight of the Institutional Review Board. Address questions or problems regarding these activities to Dr. Amy Doolittle, UTC IRB Chair, email: amy-doolittle@utc.edu; phone: (423) 425-5563.

INFORMED CONSENT FORM B

Note: This form was used for organizations that requested an organization-specific summary.

Work experiences survey for employees who work with wildlife

You are being invited to participate in a research study about your experiences at work, including things you find challenging or resources that help you to do your job well. This study is being conducted by Destiny Burns (pld696@mocs.utc.edu), an Industrial-Organizational Psychology Master's student, and Dr. Kristen Black (kristen-j-black@utc.edu; 423-425-5479) at the University of Tennessee at Chattanooga.

You were selected as a possible participant in this study because of your association with a wildlife facility. The questionnaire will take about 30-45 minutes to complete. It will include a variety of questions on stressful aspects of your job, how you view your work, your perceptions of safety, and a few other topics.

This survey is anonymous. You will not be asked to provide your name anywhere on the survey. Any identifiable information automatically recorded by the survey platform, such as IP address, will not be retained with the survey responses. Therefore there will be no identifiable information associated with your individual response. Results will be reported back to your organization in summary form (e.g., average of ratings of all employees who participate), but no individual responses will be provided.

Your participation in this study is voluntary. By clicking "Continue" you are voluntarily agreeing to participate and you are acknowledging that you are 18 years of age or older. You are free to stop answering questions at any time or to decline to answer any particular question you do not wish to answer for any reason. If you are younger than 18, do not proceed.

Research at the University of Tennessee at Chattanooga involving human participants is carried out under the oversight of the Institutional Review Board. Address questions or problems regarding these activities to Dr. Amy Doolittle, UTC IRB Chair, email: amy-doolittle@utc.edu; phone: (423) 425-5563.

APPENDIX C

COPY OF SURVEY

Working with Wildlife Experience Survey

Directions: Please choose the response that you feel most accurately describes you.

1. What is your gender?
    a. Male
    b. Female
    c. Other or prefer not to answer [write-in option]
2. What is your age?

[write-in option]

3. Please specify your ethnicity.
    a. White or Caucasian
    b. Black or African-American
    c. Latino or Hispanic
    d. Asian
    e. Native American
    f. Native Hawaiian or Pacific Islander
    g. Two or More race/ethnicities
    h. Other/Unknown
    i. Prefer not to say
4. What type of organization do you currently work at (e.g., zoo, aquarium)? Type your response in the box below. If you prefer to not answer, type "NA."
5. How many years have you worked with the organization?

[write-in option]

6. What is your annual household income?

[write-in option]

7. What is your current job title (e.g., zookeeper)? Type your response in the box below. If you prefer to not answer, type "NA."
8. Describe in one or two sentences your primary responsibilities at work. Specifically

indicate whether you work with animals, and if applicable, the type(s) of animal(s), and the nature of your interactions.

Directions: Please rate the frequency with which your job requires the following activities using the scale provided.

1= A few times a year or never

2= a few times each month

3 = a few times each week

4 = a few times each day

5 = many times each day

9. Lift, push, or pull heavy objects (e.g., 80+pounds).
10. Perform the same motion over and over without a break (e.g., typing, scanning, assembling).
11. Use force with your fingers (e.g., pinching).
12. Twist, bend, squat, kneel, etc.
13. Stand in one position for a long time.
14. Hold your arms in one position for a long time.
15. Work with a great deal of noise.
16. Work in areas with poor lighting.
17. Work in areas with very high or very low temperatures.
18. Work in areas with poor air quality.
19. Work with dangerous substances.
20. Work in areas with slippery or uneven surfaces.
21. Engage in direct contact with animals.
22. Be in close proximity with animals that could cause a serious injury.
23. Enter enclosures with animals, which are considered low-risk for safety.
24. Enter enclosures with animals, which are considered a high-risk for safety.

Directions: Please rate the frequency with which you experience the following statements at job using the provided scale.

1 = Never 2 = Rarely 3 = Sometimes 4 = Quite Often 5 = Very Often

25. How often do you get into arguments with coworkers at work?

26. How often do you get into arguments with customers at work?

27. How often do coworkers yell at you at work?

28. How often do customers yell at you at work?

29. How often are coworkers rude to you at work?

30. How often are customers rude to you at work?

31. How often do coworkers do nasty things to you at work?

32. How often do customers do nasty things to you at work?

Directions: Please rate the extent to which you agree with the following statements about your financial situation using the scale provided.

1= Strongly disagree

2 = Moderately disagree

3 = Neutral

4 = Moderately Agree

5 = Strongly Agree

33. My current income allows me to have the lifestyle I want.

34. I am currently able to meet my financial goals.

35. I can afford to eat at the kind of restaurant I like.

36. I can save for retirement at the rate I want to save.

37. I can afford the type of housing I want.

38. I can afford the basic transportation I need.

39. I can pay my bills on time.

40. I can afford the food I need to survive.

41. I am able to pay my expenses without overdrawing my bank account.

42. I can afford to pay my utilities (heat, water, gas, etc.).

Directions: Please rate the extent to which the following statements are true for you in relation to your job.

1= Never 2 =Rarely 3 = Sometimes 4 = Usually 5 = Always

43. When I get up in the morning, I feel like going to work.

44. At my work, I always persevere, even when things do not go well.

45. I am enthusiastic about my job.

46. I am proud of the work that I do.

47. I find the work that I do full of meaning and purpose.

48. Time flies when I am working.

49. I feel happy when I am working intensely.

Directions: Below you find a series of statements with which you may agree or disagree. Using the scale, please indicate the degree of your agreement by selecting the number that corresponds with your attitudes toward each statement.

1= Strongly agree 2 =Agree 3 = Disagree 4 = Strongly disagree

50. I always find new and interesting aspects in my work.

51. There are days when I feel tired before I arrive at work.

52. It happens more and more often that I talk about my work in a negative way.

53. After work, I tend to need more time than in the past in order to relax and feel better.

54. I can tolerate the pressure of my work very well.

55. Lately, I tend to think less at work and do my job almost mechanically.

56. I find my work to be a positive challenge.

57. During my work, I often feel emotionally drained.

58. Over time, one can become disconnected from this type of work.

59. After working, I have enough energy for my leisure activities.

60. Sometimes I feel sickened by my work tasks.

61. After my work, I usually feel worn out and weary.

62. This is the only type of work that I can imagine myself doing.

63. Usually, I can manage the amount of my work well.

64. I feel more and more engaged in my work.

65. When I work, I usually feel energized.

Directions: Thinking about your primary job, please indicate your level of agreement or disagreement with each of the following statements.

1 = Strongly Disagree

2 = Disagree

3 = Somewhat Disagree

4 = Neither Agree nor Disagree

5 = Somewhat Agree

6 = Agree

7 = Strongly Agree

66. I am planning to search for a new job outside my current field during the next 12 months.

67. I often think about quitting my job.

68. If I have my own way, I will be working in some other job one year from now.

69. I am planning to search for a new job outside this organization during the next 12 months.

70. I often think about quitting this organization.

71. If I have my own way, I will be working for some other organization one year from now.

Directions: The following items ask about general safety behaviors in your work environment. Rate the extent to which you agree with the provided statements when thinking about your organizations' leaders.

1= Strongly disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly agree

My management. . .

72. Reacts quickly to solve the problem when told about safety hazards.

73. Insists on thorough and regular safety audits and inspections.

74. Tries to continually improve safety levels in each department.

75. Provides all the equipment needed to do the job safely.

76. Is strict about working safely when work falls behind schedule.

77. Quickly corrects any safety hazard (even if it's costly).

78. Provides detailed safety reports to workers (e.g., injuries, near accidents).

79. Considers a person's safety behavior when moving or promoting people.

80. Requires each manager to help improve safety in his or her department.

81. Invests a lot of time and money in safety training for workers.

82. Uses any available information to improve existing safety rules.

83. Listens carefully to workers' ideas about improving safety.

84. Considers safety when setting goals and schedules for workers.

85. Provides workers with a lot of information on safety issues.

86. Regularly holds safety-awareness events (e.g., presentations, ceremonies).

87. Gives safety personnel the power they need to do their job.

Directions: Please indicate your level of agreement or disagreement with each of the following statements

1 = Strongly Disagree

2 = Disagree

3 = Somewhat Disagree

4 = Neither Agree nor Disagree

5 = Somewhat Agree

6 = Agree

7= Strongly Agree

88. My organization makes safety a top priority.

89. Safety is an important concern at this organization.

90. I am satisfied with the amount of emphasis this organization places on safety.

91. Coworkers and management openly discuss issues related to safety.

Directions: Please rate the extent to which you agree with the following statements in relation to your job.

1= Strongly disagree 2 = Disagree 3 = Neither agree or disagree 4 = Agree 5 = Strongly agree

92. The most important things that happen to me involve my work.

93. The major satisfaction in my life comes from my work.

94. I have other activities more important than my work.

Directions: Read each question carefully. Type in your response in the box.

95. We have asked you about a number of stressful aspects of work already. What else causes you to feel stressed at work?

95. What are two to three aspects of your job that you feel make your work uniquely stressful (i.e., it's different from most other jobs)?

96. What are two to three aspects of your job that you feel make your work uniquely rewarding?

97. How do you tend to personally cope with your work-related stress? Provide two to three examples.

98. What are two to three examples of ways the organization helps you with your stress levels?

VITA

Destiny Burns was the first-born child of Darrick and Donna Burns and was born in Tupelo, MS. She has one younger sibling, Deidra Burns. She attended Carver Elementary and continued to Tupelo High School in Tupelo, MS. After graduation, she attended Mississippi State University where she majored in Psychology. Destiny completed research while at Mississippi State University which further solidified her enthusiasm to pursue a master's degree. After graduating from Mississippi State University with honors in May of 2018 she went on to get her Master's in Industrial Organizational Psychology at the University of Tennessee at Chattanooga. Upon entering the program, Destiny accepted a graduate assistantship at the university Walker Center for Teaching and Learning. Destiny graduated with a Master of Science degree in Psychology with a concentration in Industrial Organizational Psychology in May 2020.