

# Measuring Burnout in Zoo & Aquarium Professionals: A Case for Equity and Justice

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## Abstract

This study analyzed the rates of burnout in zoo and aquarium employees to determine who experiences burnout. Previous research has examined which demographic groups experience harassment and discrimination, but not much research has shown which demographic groups experience burnout. This study looked at who is experiencing burnout at zoos and aquariums and the factors that may lead to higher levels of burnout. Researchers distributed a survey to recruit individuals working or who have previously worked at a zoo or aquarium. Of 616 respondents, 91% reported they experienced burnout while working at a zoo or aquarium, and 60% stated they left a position because of burnout. Survey participants who identified as Black, Indigenous, and/or people of color were significantly more likely than those identified as White to leave their positions because of burnout. Participants who experienced harassment and discrimination in their workplace were significantly more likely to experience burnout and leave their positions because of it. Participants who experienced stress, anxiety, and exhaustion as a result of their work were more likely to experience burnout. On the other hand, people who were often recognized, valued, and supported by their team and leaders were significantly less likely to experience burnout and leave their positions. The results of this survey indicate that clear and transparent communication between staff, leaders, stakeholders, and decision-makers is critical to better understanding employees' needs and preventing burnout.

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## Introduction

In 2019, World Health Organization (WHO) added Burnout Syndrome to the 11th Revision of the International Classification of Diseases. People who experience burnout may have symptoms like stress, exhaustion, energy depletion, and feeling unaccomplished as a direct result of chronic workplace stress (WHO, 2019). A study in 2017 found that job burnout can lead to many long-term health complications like heart disease, Type 2 diabetes, and major depressive disorder (Salvagioni et al., 2017). Harvard Business Review estimated that job burnout has resulted in \$125 billion to \$190 billion spent annually in healthcare costs (Garton, 2017).

Since the COVID-19 pandemic began, many people have left their jobs and careers, searching for ones that better fulfill their financial and personal needs (Durcharme, 2021). Many news outlets and social media discussions have described this as the “Great Resignation” (Kaplan, 2021). Many organizations and businesses have yet to take responsibility for this, as employers historically redirected blame to the employees. However, several studies discovered some key factors that lead to workplace burnout. Among the top five are an unreasonable workload, lack of support from management, and unfair treatment (Maslach & Leiter, 2016).

Burnout has been heavily researched in fields like healthcare and teaching, as these fields tend to be the most physically and emotionally demanding, with long hours (Maslach, Schaufeli, & Leiter, 2001). Nurses, doctors, veterinarians, and teachers are also at risk of compassion fatigue. The American Psychological Association (Clay, 2020) explains that compassion fatigue happens when people take on the suffering, stress, and trauma experienced by others.

Those working at zoos and aquariums might recognize the symptoms of burnout and compassion fatigue. Research shows that, similarly to healthcare workers, animal care workers take on the stress and trauma experienced by animals (Hill, LaLonde, & Reese, 2020). There has not been much research looking at burnout rates among zoo and aquarium professionals.

Many facilities have increased their diversity, inclusion, and equity (DEI) initiatives in the last few years after the Association of Zoos and Aquariums (AZA) added a new accreditation standard centered on these topics. However, burnout and compassion fatigue might be perpetuating equity and justice issues.

A 2021 Women in the Workplace report found that women were significantly more likely to experience burnout than men. The results from the survey demonstrate that despite putting in more hours and effort, women, specifically women of color, were significantly less likely to advance in their careers. This situation causes people to feel under-accomplished and underrecognized compared to their peers - a key factor in burnout. Research indicates that those who identify as women (Miller, 2021), LGBTQ+ (Samuels et al., 2021), and/or Black, Indigenous, and people of colour (Basma, DeDiego, & Dafoe, 2021) are more likely than their peers to experience discrimination and mental health issues in the workplace, which can also lead to burnout.

Organizations like zoos and aquariums can try new recruitment strategies

and training programs to increase the number of diverse employees. However, facilities’ “diversity” numbers will not last if burnout disproportionately affects specific groups. Organizations need to understand who experiences burnout and how to support those individuals, as this will help build their equity and justice initiatives.

This study aimed to determine the rates of burnout within historically marginalized groups working at zoos and aquariums. The study also examined how various forms of harassment and discrimination lead to burnout. Lastly, this study examined individuals’ work experiences to determine if they are more likely to have positive or negative experiences while working at zoos and aquariums. We expected individuals from historically marginalized groups and those who experience harassment and discrimination to have higher rates of burnout due to results from similar studies

## Materials and Methods

Researchers created the study with the online surveying software Qualtrics using 32 questions. We posted the survey in two professional Facebook groups, Zookeeper to Zookeeper and Public Aquarium Aquarists, on the subreddit r/Zookeeping and sent the survey to three professional zookeeper organizations. The survey was open for data collection for one month. After the closing date, we removed unfinished surveys from the study sample.

All subjects participated voluntarily and provided informed electronic consent to participate in this study. The procedures were reviewed and found to adhere to the principles for the ethical conduct of research as described in the Belmont Report and Declaration of Helsinki. The research plan was reviewed and approved by the Miami Research Ethics and Integrity Office (protocol ID: 04300e).

In the first section, participants were asked about their general work history to gather information about what area of the facility they worked in, the number of hours per week they spent working, and their annual household income. The first section also collected the participant’s demographic information, including their gender, age, race and ethnicity, disability status, and sexual orientation. We designed the choices in the demographic section based on current research on demographic data collection (Gonzalez-Barrera, 2015). Previous studies separated race and ethnicity into separate demographic categories. However, research from Gonzalez Barrera & Lopez (2015) suggests that combining these into one question without using the terms “race” or “ethnicity” can provide more accurate results.

The next section of the survey asked participants about symptoms previously associated with burnout. This section asked respondents to rate how frequently they experience different scenarios while working at a zoo or aquarium. These statements were created based on research about the factors that lead to burnout and the symptoms described by the World Health Organization.

The third section asked participants five questions about their experiences with harassment or discrimination at work. The participants could respond to these questions with “Yes,” “No,” or “No, but I’ve witnessed it happening to coworkers.” The last section of the survey provided participants with a definition of burnout from the World Health Organization and asked two yes or no questions, displayed in Table 1.

<b>Table 1</b>	
<i>Survey questions that were included regarding burnout.</i>	
Q1	Have you ever or are you currently experiencing workplace burnout at a zoo or aquarium?
Q2	Have you ever quit a job at a zoo or aquarium or moved to a different position because of workplace burnout?

Researchers analyzed the data using inferential statistics. We used a z-test for two proportions to compare the proportion of individuals who responded “Yes” to Questions 1 and 2 (Q1 & Q2, Table 1) based on specific variables like their demographic data. We used a paired t-test to compare the mean frequency of participants’ positive experiences at work to their negative experiences. Lastly, we used descriptive statistics to visualize the study sample.

## Results

### Data about the Participants

The survey received a total of 766 responses. Unfinished responses and responses from participants outside of the United States were removed from the study sample, bringing the total number of responses to 616 ( $N = 616$ ). Most participants worked in animal care, followed by education, conservation, and nutrition (Figure 1).

On average, participants held 1.53 jobs and worked 42.88 hours per week. Most participants (69%) held a bachelor’s degree and had an annual household income of \$30,000 to \$44,999 to support themselves. Most (71%) of the participants were millennials aged 26 to 41 (Figure 2).

### Data about Burnout

Overall, 91% of participants reported experiencing burnout while working at a zoo or aquarium by answering “Yes” to Q1. Additionally, 60% of participants reported quitting or changing jobs because of burnout by answering “Yes” to Q2. Table 2 shows the percentage of respondents in each demographic that responded “Yes” to Q1 or Q2.

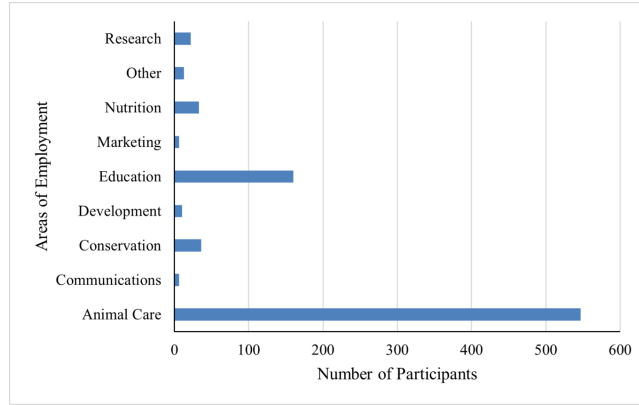


Figure 1: *Areas of the zoo or aquarium that the participant worked.*

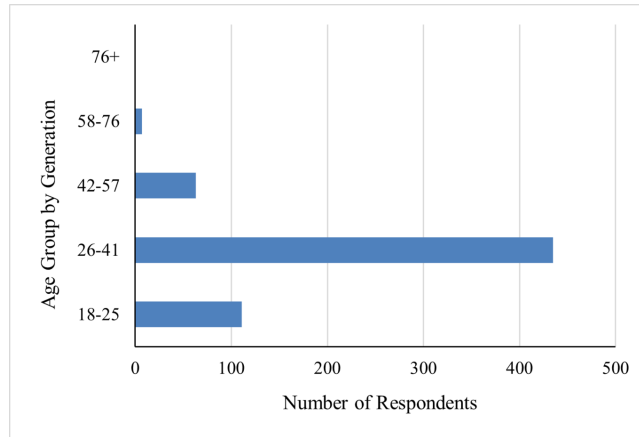


Figure 2: *Ages of participants separated by generations.*

The  $p$ -value indicates if the percentage in the first column is significantly greater ( $p < .05$ ) than the percentage in the right column (i.e. if the percentage of Men who said Yes to Q1 was significantly greater than those who identified as a third gender). Participants who identified as Black, Indigenous, and/or People of Color (BIPOC) were significantly more likely ( $p = .070$ ) than participants who identified as only White to leave their jobs or current position because of burnout. In every other pairing, there was no significant difference between the percentages of respondents.

Table 3 shows the five questions about harassment and discrimination with the percentage of respondents who marked “Yes.” Tables 4 through 7 show the percentages of respondents that responded “Yes” to the questions regarding

**Table 2**  
*Percentage of Participants that Responded "Yes" to Q1 and Q2 by Demographic.*

Gender	Third Gender	Men	<i>p</i>
Q1	92%	89%	.316
Q2	60%	44%	.089
Gender	Women	Men	<i>p</i>
Q1	91%	89%	.258
Q2	50%	44%	.181
Sexual Orientation	LGBTQ+	Straight	<i>p</i>
Q1	92%	90%	.202
Q2	53%	49%	.166
Race & Ethnicity	BIPOC	White	<i>p</i>
Q1	92%	91%	.331
Q2	61%	48%	.023
Disability Status	Disabled	Non-disabled	<i>p</i>
Q1	96%	90%	.070
Q2	54%	49%	.276

burnout (Table 1), organized by their responses to the questions about harassment and discrimination (Table 3). Each question in Table 3 (QA through QE) asked participants about a different form of harassment and discrimination.

**Table 3**  
*Percentage of respondents who marked "Yes" to survey questions on harassment & discrimination.*

	Question	Percentage
QA	Have you ever been discriminated against in the workplace based on your race, ethnicity, gender identity, sexual orientation, English skills, or disability(ies)?	22%
QB	Have you ever been overlooked for promotions based on your race, ethnicity, gender identity, sexual orientation, English skills, or disability(ies)?	12%
QC	Have you ever received unfair treatment at work based on your race, ethnicity, gender identity, sexual orientation, English skills, or disability(ies)?	25%
QD	Have you ever experienced microaggressions at work from coworkers, supervisors, or visitors based on your race, ethnicity, gender identity, sexual orientation, English skills, or disability(ies)?	39%
QE	Have you ever experienced sexual harassment at work from coworkers, supervisors, or visitors?	32%

In every single category, participants who experienced some form of harassment and discrimination were significantly more likely ( $p < .01$ ) to experience burnout and significantly more likely ( $p < .01$ ) to change their job because of burnout than participants who had not experienced harassment or discrimination (Tables 4 and 5).

Additionally, participants who witnessed their coworkers experiencing ha-

**Table 4**

*Rates of burnout between participants who have experienced harassment and discrimination compared to participants who have not.*

Response	Question				
	QA	QB	QC	QD	QE
<b>Yes</b>	96%	99%	98%	95%	94%
<b>No</b>	86%	88%	86%	85%	87%
<i>p</i> -value	.001	.003	.001	.001	.009

**Table 5**

*Rates of burnout between participants who have witnessed harassment and discrimination compared to participants who have not.*

Response	Question				
	QA	QB	QC	QD	QE
<b>Witness</b>	97%	97%	98%	95%	94%
<b>No</b>	86%	88%	86%	85%	87%
<i>p</i> -value	.001	.007	.001	.003	.019

harassment and discrimination were significantly more likely ( $p < .05$ ) to experience burnout and change jobs because of it than participants who did not experience or witness harassment and discrimination (Tables 6 and 7).

**Table 6**

*Rates of burnout that led to quitting between participants who have experienced harassment and discrimination compared to participants who have not.*

Response	Question				
	QA	QB	QC	QD	QE
<b>Yes</b>	66%	66%	63%	57%	55%
<b>No</b>	41%	45%	44%	43%	44%
<i>p</i> -value	.001	.001	.001	.001	.007

**Table 7**

*Rates of burnout that led to quitting between participants who have witnessed harassment and discrimination compared to participants who have not.*

Response	Question				
	QA	QB	QC	QD	QE
<b>Witness</b>	56%	61%	54%	51%	55%
<b>No</b>	41%	45%	44%	43%	44%
<i>p</i> -value	.001	.002	.038	.066	.017

## Symptoms of Burnout

The survey asked participants to rate how frequently they experienced symptoms related to burnout. The four choices were Never, Some Days, Most Days, and Every Day. The choices were given a corresponding numerical value, with Never=0, Some Days=1, Most Days=2, and Every Day=3. For example, if participants chose “Never,” their answer would be a 0 because they did not experience the symptom. There were four negative statements and five positive statements regarding the participants’ experiences at work (Table 8).

**Table 8**

*Statements in survey related to burnout symptoms.*

Statement	
A	I feel stressed or anxious at home as a direct result of my job.
B	I am anxious to go to work.
C	I am unmotivated to do activities outside of work because of my job.
D	I am physically and mentally exhausted because of my job.
E	When I arrive at work, I am excited for the day.
F	I have enough physical and mental energy to complete all my tasks at work.
G	I am recognized for my accomplishments at work.
H	I feel valued by my supervisors and leaders.
I	I am supported by my team and coworkers.

For each statement, we separated the responses into their numerical category (0, 1, 2, or 3) and calculated the percentage of people who experienced burnout within each category.

Every negative statement showed a strong positive correlation ( $r > 0.85$ ) between negative experiences and experiencing burnout. In other words, the more people experienced these statements, the more likely people were to experience burnout and leave their jobs because of it. For statements A, B, and D, the correlation between experiencing the statement and leaving a job because of burnout was statistically significant. This data is visualized in Figures 3 and 4.

On the other hand, every positive statement showed a strong negative correlation ( $r < -0.9$ ) to burnout. Statements E, F, G, and H, showed a strong negative correlation to people leaving their jobs because of burnout.

The more people experienced positive statements, the less likely they were to experience burnout. Statements F through I showed a statistically significant correlation to burnout. Statement H showed a statistically significant correlation to leaving a job because of burnout. This data is visually displayed in Figures 5 and 6.

The frequency of negative statements and positive statements was averaged per participant. The mean frequency of negative experiences was significantly



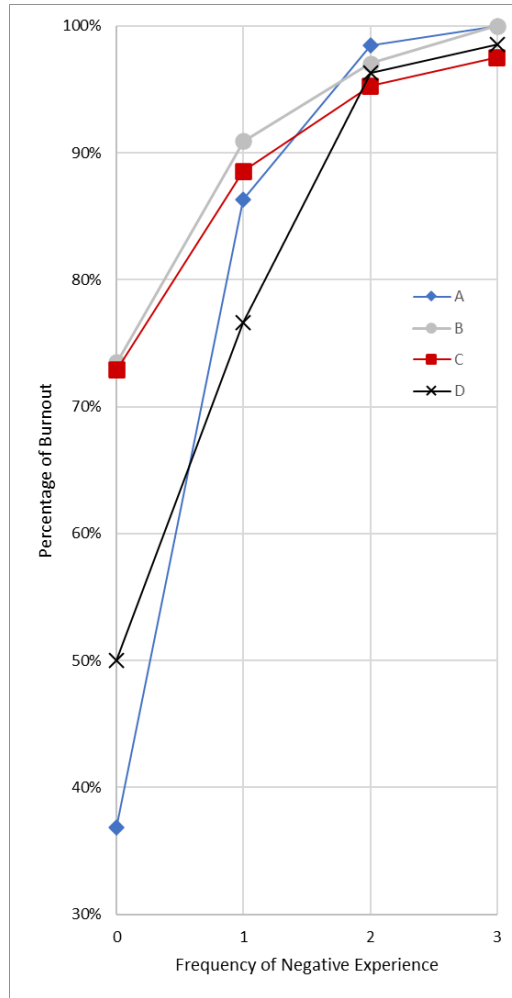


Figure 3: *Percentage of people who experienced burnout by the frequency of negative work experiences.*

greater ( $p < .01$ ) than positive experiences. In other words, participants had negative experiences at work more frequently than positive ones.

## Discussion

The average participant worked more than one job and more than a standard 40-hour work week. Given that the median hours worked per person was 41, 50% of survey participants worked more than a 40-hour work week. The Occupational

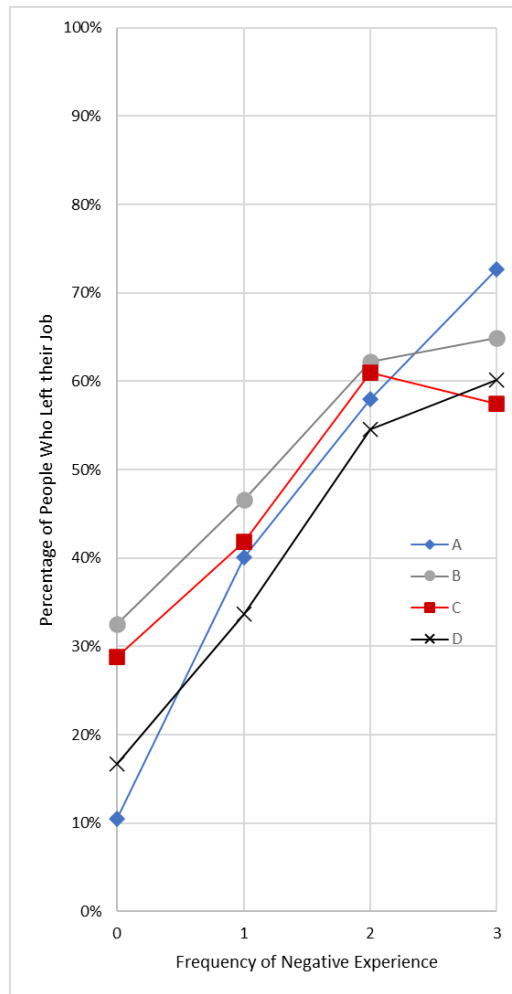


Figure 4: *Percentage of people who left their jobs because of burnout by the frequency of negative work experiences.*

Safety & Health Administration (OSHA, 2022) explains that long work hours lead to higher stress levels and increase the risk of illnesses and injuries related to occupational hazards. Research on worker fatigue and long working hours has been around for over 15 years. One study from 2006 found that extended and irregular hours led to stress, fatigue, and increased rates of smoking (Johnson & Lipscomb, 2006).

Over 70% of survey participants were between the ages of 26 and 41. One survey question asked how many years a respondent had in the field. However, this question was voided due to an error in the survey. Since most survey

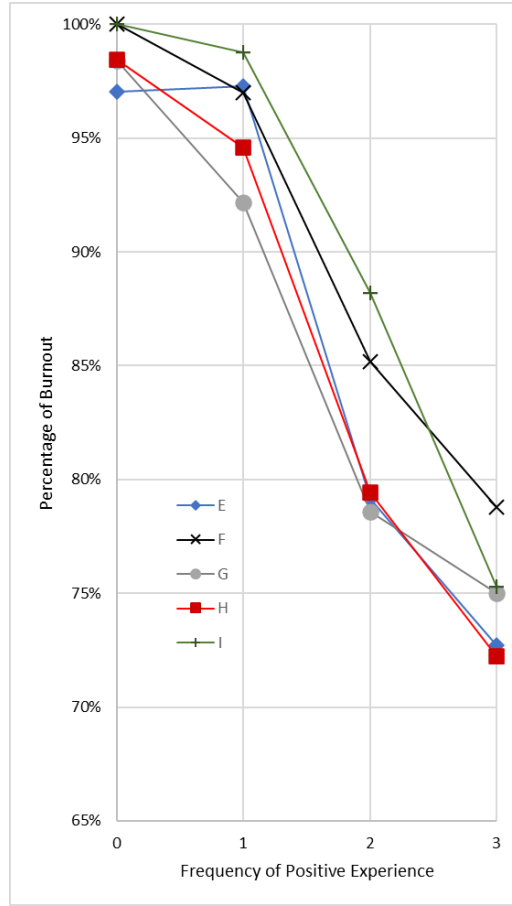


Figure 5: *Percentage of people who experienced burnout by the frequency of positive work experiences.*

participants were mid-career and well before retirement age, we can infer that people experience burnout regardless of their age or years in the workforce. More research is needed on this topic.

This study aimed to determine who experiences burnout and why - not if zoo & aquarium professionals experience burnout at all. Therefore, there is some selection bias in the individuals that responded to the survey. The invitation included that the study was researching burnout. Therefore, people already experiencing burnout may have felt more inclined to participate. Still, over 90% of participants reported that they had experienced burnout while working at a zoo or aquarium.

Most participants had a household income of \$30,000 to \$44,999 while supporting themselves. The Massachusetts Institute of Technology's living wage

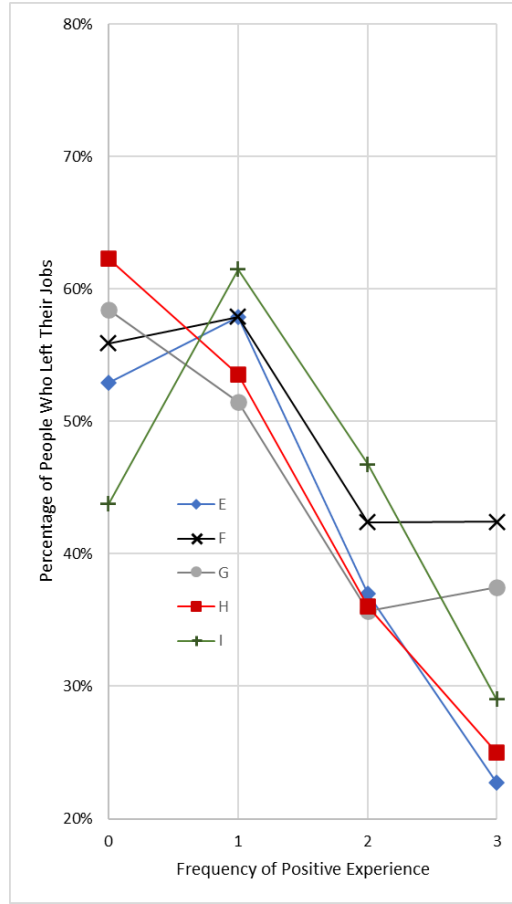


Figure 6: *Percentage of people who left their jobs because of burnout by the frequency of positive work experiences.*

calculator (2022) states that South Dakota has the lowest living wage in the United States at \$14.85 per hour or \$30,888 annually. In 2021, Janzen and Hellsten found a correlation between low household income and greater psychological distress, a factor that can contribute to burnout (Janzen & Hellsten, 2021).

Altogether, the long working hours, low household income, and physically and emotionally demanding workload create working conditions associated with burnout. Results from the survey reported these conditions. Therefore, it is unsurprising that over 90% of the 616 survey participants reported experiencing burnout. This study aimed to dig in further and discover burnout's underlying causes and effects.

Since 2020, zoos and aquariums have seen a push to increase the number

of diverse employees (Silver, 2021). Most of these efforts have been through social media campaigns, blog articles, and heavy recruitment. However, even if facilities hired more individuals from historically marginalized communities, the results from this survey suggest that those who identify as Black, Indigenous, and people of colour (BIPOC) are significantly more likely to leave the field because of burnout.

The results showed that participants who experienced some form of harassment and discrimination in their workplaces were significantly more likely to experience burnout. Previous research in the medical field has shown that discrimination, abuse, and sexual harassment are associated with high levels of burnout in women working in the medical field (Hu et al., 2019). When discussing ways to prevent burnout, organizations must include harassment and discrimination.

While zoos and aquariums might partake in harassment and discrimination training, (Chang, 2019) found that the results of these trainings typically do not last long. They explain that changes to organizational culture must be systemic and come from internal sources. A 2016 report by the U.S. Equal Employment Opportunity Commission (EEOC, n.d.) showed that only 30% of employees that experience harassment and discrimination make an internal report. Organizations can work to change these statistics by creating a learning culture for all employees, promoting clear communication between all levels of staff, and demonstrating these changes top-down.

People from historically marginalized communities face numerous barriers in the zoo and aquarium industry. Not only is there a substantial financial barrier to gaining experience and gaining entry (Colton, 2022), but once an individual enters the field, their experiences can quickly lead to burnout. The results from this study suggest that efforts to retain and support employees from historically marginalized groups should be focused on addressing burnout.

Previous research has indicated that organizational leadership can significantly impact burnout (Shanafelt et al., 2015). Things like poor communication, lack of support, lack of recognition, and a hostile work environment are just a few factors that have shown a correlation to burnout in healthcare professionals. The World Health Organization describes burnout symptoms as low energy, feeling negative about a job, and stress that results directly from the workplace. The statements listed in Table 8 summarize these factors and symptoms.

People who experienced stress, anxiety, and a lack of energy more frequently – both at work and home – were more likely to experience burnout and leave their jobs. The people who reported feeling supported and valued by their leaders and team, were recognized for their accomplishments, and had enough energy to complete their tasks were significantly less likely to experience burnout and leave their job.

The results of this section suggest a few options for leaders to work on to prevent burnout in their staff. Leaders can work to create a more positive work experience by clearly demonstrating support, appreciation, and recognition for their staff. There are many ways to accomplish this; not every staff member wants to be recognized similarly. Organizations should research ways to recog-

nize and appreciate their staff by directly polling them.

Additionally, employers should look for ways to reduce the physical and mental energy required for staff to complete their jobs. Careers at zoos and aquariums can often be very physically involved. While the responsibilities and tasks of these jobs cannot be easily changed, the percentage of time employees spend doing these tasks can change. This could be accomplished by hiring additional staff to reduce the workload, shifting responsibilities so leaders and managers take on more physical tasks, and discussing with team members what tasks require the most energy for them as individuals.

## Conclusion

The past few years have seen historic employee turnover, which has triggered conversations about how organizations can better support their employees. The results of this study suggest that organizations should focus on improving their organizational culture to reduce burnout. There are several essential steps that organizations in the zoo and aquarium field can take to reduce burnout and support all employees.

First, they should look at their diversity, equity, and inclusion initiatives to ensure their programs create systemic change by recognizing the additional mental weight often placed on historically marginalized communities. Second, organizations should discover ways their employees feel the most recognized and appreciated. This may be through awards, financial incentives, public acknowledgments, or consistent leader feedback. Lastly, organizations should communicate with staff to understand what tasks require the most physical and mental energy and discuss how to shift those responsibilities. Altogether, the results of this survey indicate that clear and transparent communication between staff, leaders, stakeholders, and decision-makers is critical to better understanding employees' needs and preventing burnout.

Creating equity and justice programs does not stop with displaying public statements or implementing staff trainings. Diversity, equity, inclusion, and justice initiatives require systemic changes that start at the leadership level.

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## Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author, JM. The data are not publicly available due to restrictions containing information that could compromise the privacy of research participants.

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