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**Pandemics and Animal Welfare: A Quantitative Inquiry into how the Covid-19 Pandemic
has Affected the Companion Animal Industry in Northwest Arkansas**

Kayla DeSmet

University of Arkansas

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Definitions

*Animal welfare: the state of the animal in relation to its environment, the care it is given
(Broom, 1991)

*Companion animal: a pet or other domestic animal.

*Pet care services: include veterinary visits, grooming, overnight boarding, animal daycare facilities, and behavioral or obedience training.

Abstract

Since the emergence of the COVID-19 pandemic in late 2019, industries have been impacted globally. The companion animal care industry has not received much recognition in mainstream news, and though multiple grants have been allocated (Nolen, 2020), limited resources were available to individual facilities such as animal shelters, animal day cares, and boarding facilities. Little is known about the long-term effects of the pandemic on these facilities and how companion animal care may have changed. The purpose of this study was to explore the day-to-day impacts and long-term effects of COVID-19 on the companion animal industry in Northwest Arkansas from early 2020 through 2021. This study recruited participants at animal shelters, rescue organizations, and animal daycare and boarding facilities in Northwest Arkansas, and utilized a non-experimental survey research design. Twenty-eight facilities were contacted and six agreed to participate. Initial descriptive statistics ($n = 10$) showed an overall decrease in the number of clientele (60%) and animal patients (90%) that required their services in 2020, but in 2021 these numbers have increased. Open responses showed that non-profit organizations were not subject to the same mandated shutdowns as other businesses, which was an unexpected finding. The results align with an earlier study in 2020 showing an increase in the number of pet surrenders and abandonments, followed by a notable increase in the number of pet adoptions and foster home applications that had been filled out at the start of the Covid-19 pandemic (Van Dobbenburgh & De Briyne, 2020). However, this study determined that there have been an increased number of animal surrenders since Covid-19 related restrictions have been lifted since 2021, and participants coined the term “pandemic puppies” to describe animals that were adopted for companionship during quarantine and then returned to shelters once restrictions were lifted.

Introduction

Background and Need

Covid-19 has taken the world by storm over the course of the last two years impacting all facets of the companion animal welfare industry. Research has been conducted on how Covid-19 has impacted veterinary practices, but the research focuses on how veterinary medicine has assisted in understanding what is known about the Coronavirus. There are limited resources that explain how the care of animals has been affected by Covid-19, the financial benefits or hardships of facilities that provide animal services, or if there was a change in clientele in other facets of the pet care industry because of the pandemic. The American Veterinary Medical Association compared operational strategies and precautionary measures that were taken by veterinary practices all throughout the United States and compared the results from April 2020 to the results from July 2020 (AVMA, 2020). Many practices nationwide have deployed multiple operational strategies such as telemedicine and curbside drop-off. They also implemented mandatory precautionary measures in veterinary practices that include, social distancing, asking sick team members to stay home, and canceling nonessential appointments as a direct result of the outbreak of Covid-19. All these modifications were made to ensure the proper care of companion animals as well as the maintenance of veterinary practices, while also adjusting to their clientele's needs and wants throughout the pandemic.

However, insufficient information is available about the effects of the Covid-19 pandemic on animal shelters, rescue centers, and daycare and boarding facilities. Little is known about how the shelter in place mandates and enforcement of social distancing have impacted other aspects of companion animal care, and how those impacts may be contributing to the entirety of companion animal wellbeing and welfare. This study explores the change in clientele

and animal volumes throughout the course of the pandemic, the differences in price and demand fluctuations in animal care facilities, and the quality of care for companion animals among a variety of pet care facilities in Northwest Arkansas, and how these facilities have contributed to companion animal welfare.

Problem Statement

Covid-19 impacted the companion animal industry globally, challenging all aspects of animal welfare. There are limited resources available investigating the impacts of Covid-19 on animal shelters, rescue centers, and animal daycare and boarding facilities. Additional research is needed to focus on the financial stability of these workforces, and how they have had to adjust to shelter in place mandates and fluctuations of business practices throughout the pandemic. There is also limited information and research available on the impacts of Covid-19, and how these effects are impacting the quality of care that is given to companion animals.

Purpose Statement

The purpose of this study was to explore the impacts of Covid-19 on the companion animal industry in Northwest Arkansas from early 2020 through 2021. This study explored the change in clientele and animal volumes, identified the price and demand fluctuations for the facilities during business fluctuations, and if there had been a change in the way overall care was provided to the animals since the outbreak of the pandemic. This study focused on animal shelters and rescue facilities, as well as animal daycares, and boarding facilities in Northwest Arkansas.

Research Objectives

The following objectives guided the study:

- Identify the day-to-day impacts and long-term effects of Covid-19 on animal shelters, rescue organizations and daycare and boarding facilities in Northwest Arkansas.
- Identify how the aspects of Covid-19 changed (if at all), the way companion animal care is provided to animals throughout these facilities.
- Explore the aspects of Covid-19 that have most affected animal shelters, rescue organizations, and animal daycare and boarding facilities in Northwest Arkansas.

Literature Review

This section begins with a review of the literature discussing different strains of coronaviruses and how they affect companion animals including their abilities to transmit Covid-19 to humans versus other species. The next section explores the effects of Covid-19 on pet care and relevant services that have increased since the beginning of the pandemic. The services of interest include boarding and grooming facilities as well as animal shelters. The last section explores the pet care e-commerce market and how e-commerce has benefited from the pandemic. The purpose of this review of existing literature is to review previously conducted research to uncover those research topics that may be underrepresented in the literature due to the novelty of the Covid-19 pandemic.

Coronaviruses and Companion Animals

Many coronaviruses (CoVs) that have been identified in past decades have crossed multiple species barriers. In companion animals, specifically in cats, the feline strain of coronavirus causes a disease called Feline Infectious Peritonitis (FIP), which is a highly fatal systemic disease and usually results in the death of the cat. Cats have been recorded to become

infected with SARS CoV-2, the strain that causes Covid-19 seen in humans, and have been able to infect other cats, but it has not been proven whether they can infect humans in return. Dogs are also susceptible to a strain of coronaviruses, called Canine Respiratory Coronavirus (CRCoV). Canine Respiratory Coronavirus has been linked with many other respiratory diseases in kennel populations of dogs (Mobasheri, 2020).

At the time of this study, two dogs and two cats were infected with and tested positive for SARS-CoV-2. The first reported case was seen in a 17-year-old Pomeranian from Hong Kong where the dog tested positive in a RT-PCR test that detects the SARS-CoV-2 pathogen in genetic material (Tiwari et al., 2020). This dog was living in close proximity to its owner who had earlier tested positive for Covid-19, strongly suggesting that infection was transmitted from the owner to the dog. The other dog was a German Shepard from Hong Kong, who was also living with a Covid-19 positive owner, again suggesting transmission of the virus from owner to the dog. Two cats, from Belgium and Hong Kong, tested positive for SARS-CoV2 (Tiwari et al., 2020). Both cats were also living with infected owners. However, these cats showed signs of increased neutralizing antibodies for the SARS-CoV-2 virus. All the infected animals showed few or zero clinical signs of illness, making it appear that they have low potential of assisting in the spread of the novel coronavirus. This suggests that humans are more likely to transmit Covid-19 to their pets, instead of vice versa.

Pet Care and Services During a Pandemic

At the beginning of the Covid-19 outbreak, many pet owners were fearful of contracting the Covid-19 virus from their pets, resulting in an increase of pet surrenders and abandonments (Van Dobbenburgh & De Briyne, 2020). Correspondingly, there was a notable increase in the number of pet adoptions and foster home applications that had been filled out in early 2020 at the

start of the Covid-19 pandemic (Van Dobbenburgh & De Briyne, 2020). Increases in pet ownership are in response to the shelter in place mandates, while also making it more appealing to own a pet while everyone is working from home and abiding by social distancing regulations. Research provided by The American Pet Products Association (APPA) indicated that six percent of participants stated that they had gotten a pet during the time of the pandemic (Curtis, 2020).

The demand for goods and services provided by the pet care industry is expected to increase as the number of pet owners grows. Pet services are likely to experience increased demand including veterinary visits, grooming, overnight boarding, animal daycare facilities, and behavioral or obedience training (Boesel, 2020). Dogs have historically fueled the pet services industry more than cats because the services offered are more applicable to dogs. Dog walking and training operations have been on a decline since Covid-19 began, and when pet owners return to work, it is likely going to cause separation anxiety in many pets (Boesel, 2020). Separation anxiety once workers go back to work and children go back to school in these pandemic pets will ultimately lead to an increase in services associated with animal behavior and training (Boesel, 2020).

The Impacts of Covid-19 on the Companion Animal Industry

The companion animal industry is made up of many different animal-related sectors all of which focus on the wellbeing of the animal, and as the number of households that own a pet increases so will the need for the related companion animal industry services. The pet grooming and boarding industry in the United States has seen a steady incline for the past five years and is expected to continue growing (Daly, 2021). As more pet owners return to work, they essentially have less time to take care of their pets resulting in an increased demand for pet care services.

Animal shelters have played a critical role in the animal welfare industry throughout the pandemic while facing many unique problems, yet they have still managed to provide adequate care for lost or abandoned companion animals. Animal shelters have been under stress during the pandemic which resulted in The American Society for the Prevention of Cruelty to Animals (ASPCA) formulating a Covid-19 relief and recovery grant (Nolen, 2020). This grant provides nearly two million dollars to animal welfare organizations facing the impacts of Covid-19. The ASPCA attempted to alleviate other stressors that have been brought by the pandemic and focused on animal shelters and other animal welfare organizations that were in serious need of funding, to help provide pet food and donate to struggling pet owners throughout many cities in the United States (Nolen, 2020).

On a global scale, the pet care e-commerce market has been positively impacted by the Covid-19 pandemic (PR Newswire, 2021). As a direct result of social distancing mandates, many pet owners turned to the use of the internet to obtain their pets' needs resulting in a significant increase in the number of online orders. Chewy.com had record-breaking growth in sales, increasing 46.2%, and the company sold more than one billion dollars of merchandise through its auto-ship program for the first time (PR Newswire, 2021). Countries, like the United States and Canada, have both seen a rapid increase in the number of pet owners since the outbreak of Covid-19 began. These two countries are the two major forces that have led to such an increase in growth in the pet care e-commerce market and in the pet care industry (PR Newswire, 2021).

This section reviewed the pre-existing literature by explaining the different strains of coronaviruses and what strains can infect companion animals. It also discussed the fear that owners expressed of contracting the coronavirus from companion animals which resulted in a brief increase in pet surrenders and abandonments. Other themes in the literature included the

rising number of pet owners, financial fears associated with the cost of pet care services, and the growth of the global pet-care e-market and the companion animal industry.

Methods and Materials

This section describes the research design methods and materials used to conduct this study. This section provides an explanation for the rigor of the study, as well as the steps taken to ensure the reliability and validity of the study. A subsection is dedicated to discuss population and sampling methods, that describe the details of the procedures that were used to obtain data throughout this study. The instrumentation subsection thoroughly discusses the steps taken to formulate the survey and provides insight on the types of questions that were chosen to obtain both quantitative and qualitative data. The last subsection addresses the data collection process and the steps taken to obtain and analyze this study's empirical results.

Research Design

This study utilized a non-experimental, survey research design using a survey instrument to explore the impacts of COVID-19 on companion animal service providers in Northwest Arkansas. Survey research involves obtaining information from a sample population based on their provided responses to given questions and is commonly found in the forms of questionnaires or interviews (Ponto, 2015). Survey research questions can be targeted for quantitative data, qualitative data, or both forms, allowing the researchers freedom to obtain the type of data they would like to receive. The foundation of the survey methodology for this study stemmed from research conducted by the American Veterinary Medicine Association (AVMA) and the U.S Bureau of Labor Statistics. The design selected for this study was a survey that included some matrix style, close-ended, some yes or no questions, and some with an option for

open response follow-up questions. The survey also included an open response section that covered the Covid-19 timeline.

Rigor

To address content validity, the survey instrument was reviewed by the researchers' committee members. Additionally, three cognitive interviews were conducted with employees at a local animal shelter in Northwest Arkansas, to seek feedback about the survey. Cognitive interviews allow the researcher and the participant to discuss survey questions in detail and provide verbal information on what the participant grasps from the intended question. Participants' responses allow the researcher to obtain information about how the survey questions are perceived, and whether or not they are obtaining the information that they are intending on seeking (Beatty & Willis, 2007). The participants were asked to discuss the content of the survey with the researcher. Participants' feedback was used to edit and revise the survey before distribution on a larger scale to other animal shelters, rescue centers, daycares, and boarding facilities in the Northwest Arkansas area.

Population and Sampling

The purpose of this study was to discover if animal care has changed to any degree across animal shelters, boarding facilities, and daycares in Northwest Arkansas since Covid-19, thus making the staff and workforce of these facilities the sampling population for this study. The process of selecting participants for the survey began with calling animal shelters, animal rescues, boarding facilities, and animal day care facilities asking if they would be willing to participate in the survey. For the businesses that responded with agreement to the initial call, the office manager contact information was recorded in an excel document and organized based upon their corresponding facility type. A convenience sampling method was then used by

attaching the survey as a link or PDF in an email, that was then sent to the office managers of the varying animal related facility types. In the email the office managers were asked to forward the survey to employees of interest at those facilities.

Instrumentation

A previous study conducted by The U.S. Bureau of Labor Statistics, used the Questionnaire Business Response Survey (QBR) to the Coronavirus Pandemic (U.S. Bureau of Labor Statistics, 2020). The QBR guided the development of the survey for this study. Questions were created and modified to be more specific to the effects of Covid-19 on animal shelters, rescues, boarding facilities, and animal daycare facilities in Northwest Arkansas. A survey instrument was created for this study with questions that allowed the researcher to collect both quantitative and qualitative data. The survey consisted of a variety of question styles to obtain the best results for this study, consisting of multiple-choice, Likert-style questions with responses of strongly agree, agree, neutral, disagree, or strongly disagree and open response questions. Examples of Likert-style questions with follow up open responses included asking participants if their place of work had shut down due to mandated government regulations, and if so, asking them to explain how they maintained caring for the animals in these facilities during those times. The survey also included an open response section that explored experiences during Covid-19 timeline, asking about the unknown impacts that these facilities may have had to adjust to during Covid-19 and any perceived changes in the care that was given to animals residing in these facilities (See appendix A for survey instrument).

Data Collection and Data Analysis

Human subjects approval was sought from the University of Arkansas Institutional Review Board (IRB) prior to conducting the study (Protocol #2201381645, see appendix B).

Facilities were selected based on the types of animal services that they provide, and were initially contacted by phone explaining the background, need, and purpose of this study, and asked if they were willing to participate in the survey for this study. The researcher completed a business consent form to be filled out by facility owners or office managers (see appendix D for business consent form). Once the business consent forms were returned the participating facilities were then compiled into an excel document based on facility type, the excel document also contained the business name as well as the corresponding office managers contact information. The businesses that agreed to participate in the survey were then sent an email from the researcher that provided an explanation of who they should forward the email to amongst their business employees. The email also provided participants with information on how to access and take part in the survey through an attached link.

There was a two-week timeline set for the researcher to conduct the three cognitive interviews with employees of a local animal shelter to allow time to alter the survey based on the initial feedback from the cognitive interviews. This time period allowed the researchers to adjust and prepare the survey for distribution to a larger group of animal shelters, boarding facilities, and animal daycare facilities in Northwest Arkansas. The researchers then sent the finalized email to the office managers of animal shelters, boarding facilities, and animal daycare facilities across Northwest Arkansas. The dates of first contact were noted in the excel spreadsheet and after two weeks, a reminder email was sent to the office manager on day seven to solicit additional responses. After four weeks, data collection was closed, and the data was prepared for analysis. Descriptive statistics were run to report means, frequencies, and standard deviations using the Qualtrics platform. Open response and follow up questions were downloaded as a Word document, with double spacing and wide margins, and organized by question item. The

open response questions were coded in three phases. First, the data was coded for affective responses and procedural descriptions. Secondary coding was then performed to refine the categories and codes. A final round of coding was performed to finalize the categories and name the themes observed among the responses.

Results

This next section describes the original 28 facilities that were contacted, and six of those facilities agreed to participate in the study, of those six businesses that agreed to participate a total of ten individual responses were recorded on the survey. This section will be subdivided into participant demographics, business related challenges, employee's opinions on changes throughout facilities, the Covid-19 timeline on these industries and lastly this section will discuss open response qualitative results (see appendix C for tables).

Participant Demographic Characteristics

The majority of participants were ages 40-60 years old (60%); the remaining participants fell into the category of 25-39 years old (40%). The majority of the participants were female (70%) and white (100%). The sector of the companion animal industry that the participants work in was predominantly animal shelters (50%), followed by animal daycare and boarding facilities (40%), and lastly animal rescue (rehabilitation) facilities (10%). Participants individual job titles varied from business owners (30%), executive directors (20%), business managers (10), animal care technicians (20%), animal services superintendent (10%), and animal control officers (10%) (see tables C1-C5).

Business Related Challenges

Out of the ten total responses obtained, three businesses experienced a government or local mandated shutdown as a direct result to the Covid-19 Pandemic. An animal daycare/boarding facility was closed for a duration of two months, and local animal shelters reported adjusting to emergency services only and others closed their doors to all public foot traffic.

In regards to specific setbacks, participants were presented with a set of perception statements in a matrix table and asked indicate their agreement or disagreement with

experiencing a particular setback on a scale of (1) *strongly agree*, (2) *agree*, (3) *neutral*, (4) *disagree*, and (5) *strongly disagree*. This allowed for determining the mean response for each of the following types of setbacks that facilities may have faced (See tables C6-C8).

1. *Setbacks due to supply shortages*: Participants' mean responses were between *agree* and *neutral* regarding experiencing setbacks due to supply shortages with a mean of 2.60 ($sd = 1.20$).
2. *Setbacks due to understaffing*: The mean response from participants stating that facilities experienced setbacks due to understaffing was between *neutral* and *disagree* with a mean of 3.10 ($sd = 1.04$). Understaffing setbacks were also reported as *strongly agree* (10%) and *agree* (10%), and as *disagree* (20%) and *strongly disagree* (10%).
3. *Setbacks due to lack of animal food*: The mean response for facilities that experienced setbacks due to lack of animal food was between *strongly disagree* and *disagree* with a mean of 4.20 ($sd = 0.87$) followed by *neutral* (30%).
4. *Setbacks due to lack of access to other resources*: The mean response for facilities that experienced setbacks due to lack of access to other resources resulted between *neutral* and *disagree* with a mean of 3.30 ($sd = 1.19$).
5. *Setbacks due to mandated local government shutdowns*: The mean response for facilities that experienced setbacks due to local mandated government shutdowns was between *neutral* and *disagree* with a mean of 3.20 ($sd = 1.33$).

Employee Opinions About Covid-19 Effects

When participants were asked their opinions on the likelihood that there would be an increase in the number of pets that suffer from separation anxiety once the pandemic ends, the mean fell between *somewhat agree* and *strongly agree* at 4.30 ($sd = 0.64$) on a scale of (1)

strongly disagree, (2) somewhat disagree, (3) Neutral, (4) somewhat agree, (5) strongly agree.

The participants were also asked if they believed that there would likely be an increase in separation anxiety in pet owners once the pandemic comes to an end and the mean fell between *neutral* and *somewhat agree* at 3.90 (*sd* = 0.94) on the same scale.

On the same scale participants were asked if they believe that the due to the Covid-19 pandemic the relationship between animal owners and their pets has resulted in a stronger human-animal bond and the mean fell between *neutral* and *somewhat agree* at 3.90 (*sd* = 0.83). When asked if the Covid-19 pandemic has had an effect on the companion animal industry the mean fell between the same aspects *neutral* and *somewhat agree* at 3.90 (*sd* = 0.83) (see table C8).

The Covid-19 Timeline

Participants were provided a set of statements regarding the time period after the onset of the Covid-19 pandemic during 2020 and 2021 and asked to select the best option that applied to their facility, the statements were then analyzed to find the mean and standard deviations on a scale of (1) *increased*, (2) *no change*, (3) *decreased* (see tables C9 and C10).

For the year 2020

1. *The volume of residing animals or animal patients located at my facility:* The mean fell between *no change* and *decreased* at 2.80 (*sd* = 0.60).
2. *The volume of clientele that visited my facility:* The mean fell directly between *no change* and *decreased* at 2.50 (*sd* = (0.67).
3. *The prices that my facility charged for services:* The response was *no change* with a mean of 2.0 (*sd* = 0.45).

4. *The demand for products and services provided by my facility:* The mean fell between *increased* and *no change* at 1.90 (sd = 0.94).

For the year 2021

1. *The volume of residing animals or animal patients located at my facility:* The mean fell between *increased* and *no change* at 1.80 (sd = 0.98).
2. *The volume of clientele that visited my facility:* The mean fell between *increased* and *no change* at 1.70 (sd = 0.78).
3. *The prices that my facility charged for services:* The mean fell between *increased* and *no change* at 1.80 (sd = 0.40).
4. *The demand for products and services provided by my facility:* The mean fell between *increased* and *no change* at 1.10 (sd = 0.30).

Participants were also asked to select protocols that had been established in their facilities since the Covid-19 pandemic. The frequencies reported included mandatory temperature checks upon entering work (28.57%), mandatory social distancing (28.57%), mandatory face masks (42.86%). No participants reported a mandatory Covid-19 vaccination.

Open Response Analysis

For this section the qualitative data will be divided into common analytical themes based on facility types within the companion animal industry. Three common themes that arose throughout the qualitative analysis were staffing related issues, a decline in overall business in 2020 followed by an increase in business in 2021, and lastly facilities implementing new or additional protocols in response to the pandemic. The qualitative results will be discussed in the order of the designated subsections of the different open response questions obtained from the survey instrument.

Shortages and Setbacks

Animal daycare and boarding facilities employees reported that there was an strong decline in business and they experienced staffing related issues for the year 2020. When the announcement was made in March 2020 that local public schools were shutting down and people were encouraged to stay home and work from home, local animal daycares and boarding facilities took a devastating hit in many aspects.

Decline in Business. A common theme revealed that animal daycare facilities suffered a decline in business as a result to the outbreak of the Covid-19 pandemic. The following quotes are examples of setbacks faced by animal daycare and boarding facilities as a direct result to the pandemic.

“We did experience two set-backs. One being decline in business and two being staffing.”

“Overall sales in 2020 were down 40-50% over previous years.”

“90% of Spring Break reservations cancelled. From there, business declined even worse- specifically in NWA (Northwest Arkansas).”

“Things pretty much shut down in March of 2020. We experienced an extreme downturn in business in all areas except grooming.”

In response, the majority of employees at animal daycares and boarding facilities reported that they had to make procedural changes to allow their facilities to continue to stay open throughout the pandemic, some of which included ordering personal protective equipment (PPE) online and over-hiring staff members to ensure they maintained enough staff to remain open to the public. It is important to note that there were varying responses within animal daycares and boarding facilities with an individual reporting “We shut down for two months”

and another reporting “Staffing was extremely challenging due to the amount of people that quit unexpectedly.” Both responses align within the theme of issues associated with staffing due to the pandemic.

Chronic Staffing Issues. The employees of animal shelters reported similar experiences that fall into the same theme with chronic staffing issues, which have added additional tension within these facilities. The procedural changes that animal shelters adjusted to included looking for alternative suppliers to meet their business's demands. The employees also reported that to adjust to Covid-19 changes some facilities suspended their volunteer programs. Others reported animal control officers obtained more duties due to being closed to public foot traffic. The theme presented from animal shelters aligns with issues related to staffing, see the following reports from participants.

“It just led to exhausting workloads. We didn't have a shortage of supplies however, just staff. The strain was just a lot more.”

“We really didn't take any steps (to address shortages). Staffing shortage is always a chronic issue here.”

“We had volunteers on hold due to Covid.”

“We did suspend our volunteer program, but it hasn't really affected operations overly much.”

Some individuals working at animal rescues reported that they did not feel the same pressures associated with the pandemic as other industries may have faced. Since animal rescues are volunteer based and are non-profit organizations, they were not bound to participate in any local or government mandated shutdowns or related restrictions in response to the Covid-19 pandemic. The procedural changes that animal rescue organizations made in response to the

pandemic was that they asked fosters and volunteers to practice distancing and mask when doing meet and greets with the animals. See participant response below.

“We were lucky not to experience any shortages related to supplies or staffing since we are primarily volunteer based.”

Clientele and Animal Fluctuations for 2020 and 2021

Decline in business for 2020, followed by an increase in 2021. Animal daycare and boarding facility employees reported that the demand for their client and animal services decreased during 2020, followed by an increase in late 2020 and 2021. This occurred because of local school and business shutdowns, travel restrictions, and many people ended up working from home during the beginning of the pandemic in 2020. As restrictions were lifted, and people began traveling again the clientele populations increased in 2021, for this facility the animal populations have also increased in the same manner. The following statements align with the theme that there was a decline in overall business at the beginning of the pandemic, followed by an increase in business nearing the end of it, see the following reports from employee of animal daycares and boarding facilities.

“2020 was way down for boarding, and daycare started to come back some towards the fall of 2020.”

“Clients services decreased the first six months of the pandemic and then increased dramatically.”

“People cleared the shelters and purchased puppies from breeders, and then those new pet parents realized they needed an outlet for their dogs.”

Decline in Business. Animal shelter employees reported fewer animal residents at the beginning of the pandemic in 2020, but that number has increased in 2021. Whereas the reports

on clientele fluctuations varied between animal shelters, one participant reported that their facility was having more clients interested in pet adoptions in 2020. These results align with the common theme of a decline in overall business at the beginning of the pandemic, followed by an increase in business nearing the end of it see the below statements.

“The number of animals increased as restrictions lifted, and we switched back from emergency only calls to more normal operations.”

“We had more (clientele) traffic to look at pets due to Covid.”

Another employee from a different animal shelter reported the opposite effects with fewer clients during 2020 and 2021, because this facility transitioned to emergency services only in response to the pandemic. See the below statements.

“We really limited (animal) intakes during this time (2020).”

“We opened doors to the public for maybe one month of 2021, but it was pretty much the same with low animal traffic whenever possible.”

Decline in business for 2020, followed by an increase in 2021. Employees of animal rescues reported that the fluctuation between 2020 and 2021 of clientele was overall a decrease in adopters and a substantial increase in animal surrender requests. An individual reported, “Way less adopters. Way more surrender requests.” Similarly, animal fluctuations were reported by an individual stating “The number of animal surrender requests increased significantly between 2020 and 2021.” Animal rescues coined the term “pandemic puppies”, relating to animals that were adopted during quarantine, but their owners changed their minds as restrictions were lifted and returned them back to the animal shelters.

Businesses' Services and Care during the Pandemic

Implementing New Protocols. Animal daycare and boarding facilities employees reported that they adjusted to curbside services when animals arrived at their facilities and employees wore masks into late 2021. An individual reported “We wore masks, and we increased our disinfection protocols to the highest possible level.” By doing this the employees felt that they were keeping the animals and the client's well-being a priority. The implementations of these new protocols are associated with the common theme that as a result of the pandemic businesses have had to implement new protocols within their facilities.

Implementing New Protocols. Some animal shelters employees reported that they discontinued all visitor foot traffic through their facilities and have changed the way that they introduce animals to prospective adopters. Other animal shelters reported that they implemented a new application process prior to meeting animals in response to the pandemic. Employees from both animal shelters reported plans of restarting their volunteer programs in 2022. See the following statements that are associated with the theme of implementing new protocols in response to the Covid-19 pandemic, reported by local animal shelters employees.

“We now require an adoption application be filled out and approved prior to allowing the public to meet adoptable pets outside of their cage.”

“Our operations are back to normal except for our volunteer program which we plan to restart this Spring or Summer of 2022.”

Implementing New Protocols. Employees of animal rescue facilities reported that since they are foster and volunteer based, they did not have to change much during the pandemic. Other than the implementations of asking fosters and volunteers to wear face masks and practice social distancing when holding meet and greet events with their residing animals and potential

adopters. See the below statement from an animal rescue employee that aligns with the theme of implementing new protocols in response to the pandemic.

“We are foster based so didn't have to change much. We asked fosters and volunteers to practice distancing and mask when doing meet and greets.”

Discussion and Limitations

Discussion

Participants were asked to note the change, if any, in the fluctuation of residing animals throughout the years of 2020 and 2021. The results align with a previous study conducted in 2020, in the aspect that during the quarantine time period there was an increase in the number of pet adoptions (Van Dobbenburgh & De Briyne, 2020), because there was an overall decrease in the number of residing animals located at animal shelters and animal rescue organizations from this study during 2020. However, this study was conducted throughout 2021 and concluded that there was a subsequent and substantial increase in the number of pet surrender applications that had been filled out once pandemic restrictions were lifted in 2021. This study also unveiled the term “pandemic puppies” which has been coined by participants to describe the animals that were adopted in 2020 during quarantine and other restrictions, but were returned to animal shelters in 2021 when the restrictions were lifted. This study also showed that animal daycare and boarding facilities experienced similar fluctuations in business patterns with a major decrease in business throughout 2020 when the pandemic began, and a significant increase in business in 2021.

When participants were asked whether they agreed or disagreed with the statement, *There will likely be an increase in the number of animals that suffer from separation anxiety once the*

pandemic comes to an end. The majority of the participants agreed to some degree with the statement. These results align with the conclusions of a previous study (Boesel, 2020), which believed that there would not only be an increase in the number of pets that suffer from separation anxiety, but that there would also be an increase in the services related with it such as behavioral or obedience training. However, additional research will be needed to determine if such changes have been recorded in those specific areas of companion animal services. This study determined that 50% of participants agreed to some degree with the statement, *There will likely be an increase in the number of pet owners that suffer from anxiety once the pandemic comes to an end.* This a topic that was not covered much in pre-existing literature and future research could be used to help further understand the impacts of Covid-19 on humans' overall health and wellbeing. It should be noted that results from this study show that 60% of participants agree to some degree that the Covid-19 pandemic has resulted in a stronger human-animal bond. It should also be noted that 70% of respondents agreed that the Covid-19 pandemic has had an effect on the companion animal industry.

Employees of animal daycare and boarding facilities reported an overall decrease in for the demand of their services in 2020, results from this study have aspects that agree and disagree with a previously conducted study. The previous study concluded that the grooming and boarding industry has been on a steady incline for the past 5 years and was expected to continue growing (Daly, 2021). The results from this study indicate that employees of animal daycare and boarding facilities reported there was a downturn in all areas of business except for grooming which aligns with the conclusions of the previous study. However, the boarding aspects of these facilities took a dramatic hit in 2020 as some employees reported that business sales were down nearly 40-50% in the year 2020, but these facilities are expected to make a complete turnaround

once the pandemic is officially over. In 2021 animal daycare and boarding facilities reported an increase in demand for their services as well as an increase in the number of clientele and subsequently an increase in the number of animals that attend this type of facility.

Limitations

There are some limitations associated with the study. First, this study was performed with the intention of educating the public about the effects of the pandemic on the companion animal industry and to guide and inform future projects or studies. However, the survey response was low (n=10). Although this project received grant funding, to provide incentives to participants for their completion of the survey which has been proven to be effective at increasing response rate in past studies (Holtom et al., 2022), the response rate was still considered low (Sheehan, 2001). However, this study provides valuable findings in this specific area of research to establish a baseline that can be expanded on. Steps that could be taken to increase the strength of this study include a longer time period set for business employees to take the survey. Overall, the reaching out and recruiting of participants to partake in the survey should also be a focus going forward to help obtain more broadscale results.

Conclusions and Recommendations

The goal of this research was to uncover and report the effects that the Covid-19 pandemic has had on animal daycare and boarding facilities, rescues, and animal shelters within the Northwest Arkansas region. An online survey was used to obtain both quantitative and qualitative data associated with regards to specific business setbacks and challenges that these facilities faced, this study also discussed animal and clientele business fluctuations throughout the Covid-19 pandemic timeline from 2020 to 2021. The conclusions will be organized and

discussed by the research objectives and then recommendations for future steps or additional research will be presented.

Conclusions

RO 1: Identify the day-to-day impacts and long-term effects of Covid-19 on animal daycare and boarding facilities, animal shelters and rescue organizations in Northwest Arkansas

For animal daycare and boarding facilities some of the day-to-day impacts of the Covid-19 pandemic were that many facilities had to adjust to performing curbside services when animals arrived or left their facilities. It also included the implementations of increased disinfection protocols to the highest possible level and the requirements of face masks until late 2021. The long-term effects were that boarding related business declined substantially for the year 2020, and later began accruing more constant business as local restrictions were lifted in 2021.

For animal shelters the day-to-day impacts varied amongst facilities, with some reporting closing their doors to all visitors and client foot traffic. For the long-term effects these facilities implemented a new adoption application protocol that requires approval by the facility before any kind of interaction with the prospective animal occurs. Some have also had to suspend their volunteer programs in 2020 but are planning on having them available by spring or summer of 2022.

For animal rescue organizations the day-to-day impacts were not nearly as detrimental and mainly consisted of implementing face mask protocols and social distancing among volunteers. Since animal rescue organizations are non-profit, they were not subject to local government mandated shutdowns. The long-term effects noted throughout these facilities is that in 2020 there was an increase in the number of pet adoptions resulting with fewer animal

residents at these facilities. However, in 2021 as pandemic restrictions lessened, and the number of animals that reside at these facilities increased again.

RO 2: Identify how the aspects of Covid-19 changed (if at all), the way companion animal care is provided to animals throughout these facilities

Animal daycare and boarding facilities reported the only changes associated with providing services and care to animals was the fact that they implemented curbside services and maintained higher disinfection protocols. There was not enough information given to assess if the way care is provided to these animals has changed to any degree or not. For animal shelters and animal rescue organizations there was not enough information provided to assess if the way that companion animal care is provided to animals has changed to any degree since the outbreak of the pandemic.

RO 3: Explore the aspects of Covid-19 that have most affected animal daycare and boarding facilities, animal shelters and animal rescue organizations in Northwest Arkansas

Amongst all three of the discussed sectors of the companion animal industry, three common themes emerged between them. The first being issues related to staffing that caused issues for animal day care and boarding facilities and animal shelters at the start of the pandemic. The second theme being that animal shelters and daycare and boarding facilities experienced an overall decline in business for the year 2020, and some facilities saw business increase as 2021 started. Lastly, the third theme being that these facilities implemented new or additional protocols for their facility in a direct response to the Covid-19 pandemic. Animal rescue organizations didn't seem to be deeply affected by the changes brought along by the pandemic with regards to supply shortages, a decrease in business, or staffing related issues. Animal rescue

organizations were mostly affected by the implementation of new protocols throughout their facilities.

Recommendations for Practice

This study identified the changes made by businesses in the companion animal industry in response to the global pandemic. These initial findings could be used to:

- Guide facilities in preparation, in the unfortunate scenario that something such as Covid-19 were to occur in the future.
- Inform the public, business owners, and employees on specific setbacks and adjustments to challenges brought along by the Covid-19 pandemic, throughout animal daycare and boarding facilities, animal shelters, and animal rescue organizations.

Recommendations for Research

Although this study has its limitations, it should be considered as a basis to expand on for future quantitative or qualitative studies in this area of research, because it provides information on a scarcely analyzed aspect of research. Future research could:

- Look into the effects of separation anxiety caused by the pandemic in both humans and their animal counterparts, in the aspects of their well-being or in terms of animal services associated with behavioral training that experienced a change during or after the pandemic.
- Additionally, researchers could investigate the overall changes or challenges that animal daycare and boarding facilities, shelters and rescue organizations faced once the pandemic has completely come to an end.

References

- American Veterinary Medical Association. (2020). *COVID-19 impact on veterinary practices*.
<https://www.avma.org/resources-tools/animal-health-and-welfare/covid-19/covid-19-impact-veterinary-practices>
- Beatty, P. C., & Willis, G. B. (2007). Research synthesis: The practice of cognitive interviewing. *Public Opinion Quarterly*, 71(2), 287–311. <https://doi.org/10.1093/poq/nfm006>
- Boesel, K. (2020, October). *America's pet owners: Incl impact of COVID-19* (No. 5). Mintel.
<https://reports-mintel-com.eu1.proxy.openathens.net/display/987152/?fromSearch=%3Ffreetext%3DAmerica%2527s%2520Pet%2520Owners%253A%2520Incl%2520Impact%2520of%2520COVID-19%2520-%2520US%2520-%2520October%25202020>
- Broom D. M. (1991). Animal welfare: Concepts and measurement. *Journal of Animal Science*, 69(10), 4167–4175. <https://doi.org/10.2527/1991.69104167x>
- Curtis, P. J. (2020). Pet care in a pandemic. *Progressive Grocer*, 99(10), 85-87.
<https://search.proquest.com/trade-journals/pet-care-pandemic/docview/2454692681/se-2?accountid=8361>
- Daly, J. (2021, January). *Pet Grooming & Boarding in the US* (No. 81291). US INDUSTRY (NAICS).
<https://my.ibisworld.com/us/en/industry/81291/industry-outlook>
- Holtom, B., Baruch, Y., Aguinis, H., & A Ballinger, G. (2022). Survey response rates: Trends and a validity assessment framework. *Human Relations*. <https://doi.org/10.1177/00187267211070769>

Mobasheri, A. (2020 January 1). *Covid-19, companion animals, Comparative Medicine, and One health*. *Frontiers*. Retrieved April 18, 2022, from

<https://www.frontiersin.org/articles/10.3389/fvets.2020.00522/full>

Nolen, R. S. (2020, May 15). *Shelters feel pressure of pandemic*. American Veterinary Medical Association. <https://www.avma.org/javma-news/2020-05-15/shelters-feel-pressure-pandemic#:~:text=The%20nation's%20animal%20shelters%20are,spread%20of%20the%20novel%20coronavirus>.

Ponto, J. (2015). Understanding and evaluating survey research. *Journal of the Advanced Practitioner in Oncology*, 6(2). <https://doi.org/10.6004/jadpro.2015.6.2.9>

PR Newswire. (2021, January 13). Insights on the Pet Care E-Commerce Global Market to 2025- Covid-19 has Positively Impacted Growth. Pr Newswire. US.

<http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,sso&db=bwh&AN=202101131200PR.NEWS.USPR.IO47445&site=ehost-live&scope=site&custid=s8428489>

Sheehan, K. B. (2001, January 1). *E-mail survey response rates: A Review*. OUP Academic. Retrieved April 18, 2022, from <https://doi.org/10.1111/j.1083-6101.2001.tb00117.x>

Tiwari, R., Dhama, K., Sharun, K., Iqbal Yattoo, M., Malik, Y. S., Singh, R., Michalak, I., Sah, R., Bonilla-Aldana, D. K., & Rodriguez-Morales, A. J. (2020). COVID-19: Animals, veterinary and zoonotic links. *Veterinary Quarterly*, 40(1), 169–182.

<https://doi.org/10.1080/01652176.2020.1766725>

U.S. Bureau of Labor Statistics. (2020). *Questionnaire for Business Response Survey to the Coronavirus Pandemic*. <https://www.bls.gov/covid19/questionnaire-for-business-response-survey-to-coronavirus-pandemic.htm>

Van Dobbenburgh, R., & De Briyne, N. (2020). Impact of Covid-19 on animal welfare. *Veterinary Record*, 187(5), e31. <https://doi.org/10.1136/vr.m3265>

Appendix A

Survey Instrument

1. Please indicate your age range.

- 18-24
- 25-39
- 40-60
- 61+

2. What is your gender identity?

- Male
- Female
- Non-binary / third gender
- Prefer not to say

3. What is your race?

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Pacific Islander
- White
- Two or More Races

4. What is your ethnicity?

- Hispanic or Latino
- Not Hispanic or Latino

5. In which sector of the companion animal industry do you currently work?

- I work in an animal shelter
- I work in an animal rescue (rehabilitation) facility
- I work in an animal day care/ boarding facility
- I work in a veterinary clinic that works with an organization stated in one of the above
- Other: _____

6. What is your current job title?

7. Please indicate how long you have worked this position.

- Less than one month
- 1-5 months
- 6-12 months
- 1-2 years
- 3-4 years
- 5 or more years

8. Please indicate your response to the following statement: My business experienced a shutdown due to compliance with government or local mandates during the Covid-19 pandemic.

- Yes
- No
- I don't know

9. Please indicate the duration of time that your businesses was shutdown.

- 1-2 weeks
- 3-4 weeks
- 1-3 months
- Indefinitely
- Other: _____

10. Please indicate the degree to which you disagree or agree with the following statements

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
My facility experienced setbacks due to supply shortages.					
My facility experienced setbacks due to understaffing.					
My facility experienced setbacks due to lack of animal food.					
My facility experienced setbacks due to lack of access to other resources.					
My facility experienced setbacks due to mandated local government shutdowns.					

11. What steps did you take to address shortages?

12. Please provide any additional information regarding specific setbacks that your facility faced in the text box below. Were there any other setbacks that you experienced that weren't listed?

13. Please indicate the degree to which you disagree or agree with the following statements (based on your personal and professional experience to date).

	Strongly Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
There will likely be an increase in the number of pets that suffer from separation anxiety (as demonstrated by their behaviors, Ex: excessive grooming or vocalization, inappropriate					

elimination, or compulsive/ destructive behaviors.) once the pandemic ends.					
There will likely be an increase in separation anxiety in the number of pet owners (anxiety as a result of returning to work and having to leave their pet(s) at home) once the pandemic comes to an end.					
Due to the Covid-19 pandemic the relationship between animal owners and pets has resulted in a stronger human-animal bond.					
The Covid-19 pandemic has had an effect on the companion animal industry.					

14. For the following, please indicate the option that best applies for your facility. In the scenarios described, did your facility experience a decrease, increase, or no change

	Increased	No Change	Decreased	I don't know
During 2020, the volume of residing animals or animal patients located at my facility:				
During 2021, the volume of residing animals or animal patients located at my facility:				
During 2020, the volume of clientele:				
During 2021, the volume of clientele:				
The prices that my facility charged for services in 2020:				
The prices that my facility charged for services in 2021:				
The demand for products and services provided by my facility in 2020:				
The demand for products and services provided by my facility in 2021:				

15. Which of the following protocols are applicable to your business? Please select all that apply.

- Mandatory temperature checks upon entering work
- Mandatory face mask protocols

- Mandatory social distancing
- Mandatory Covid-19 vaccinations
- None of the above

16. Did the number of animals at your facility fluctuate between 2020 and 2021? If so, what do you think caused these fluctuations? Please elaborate.

17. Did the number of clientele at your facility fluctuate between 2020 and 2021? If so, what do you think caused these fluctuations? Please elaborate.

18. Did the Covid-19 pandemic change the way your business provides services and care to its animal residents? If so, please explain.

19. Please enter your first and last name followed by your email if you would like to be entered into a raffle for Amazon e-gift cards of \$25. Your identifying information will be deleted after the raffle and not linked to your survey response in any way.

Appendix B

IRB Approval Letter



To: Isabel M Whitehead
From: Douglas J Adams, Justin R Chimka, Chair
IRB Expedited Review
Date: 02/15/2022
Action: Exemption Granted
Action Date: 02/15/2022
Protocol #: 2201381645
Study Title: Pandemics and Animal Welfare: A Quantitative Inquiry into how the Covid-19 Pandemic has Affected the Companion Animal Industry in Northwest Arkansas

The above-referenced protocol has been determined to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB Coordinator at 109 MLKG Building, 5-2208, or irb@uark.edu.

cc: Kayla Nora DeSmet, Investigator

Appendix C

Tables

Table C1

Participants' Age

Item	Frequency	Percent
18-24	0	0%
25-39	4	40%
40-60	6	60%
61+	0	0%

Note. n=10

Table C2

Participants' Gender Identity

Item	Frequency	Percent
Male	3	30%
Female	7	70%
Nonbinary	0	0%
Prefer not to say	0	0%

Note. n=10

Table C3

Participants' Race/Ethnicity

Item	Frequency	Percent
American Indian or Alaska Native	0	0%
Asian	0	0%
African American	0	0%
Native Hawaiian or Pacific Islander	0	0%
White	10	100%

Note. n=10

Table C4

Sector of Companion Animal Industry Participants Work In

Item	Frequency	Percent
Animal Shelter	5	50%
Animal Daycare/Boarding	4	40%
Animal rescue (rehabilitation)	1	10%
A veterinary clinic that works with an organization stated in one of the above	0	0%

Other	0	0%
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Note. n=10

Table C5

Participants' Job Titles

Item	Frequency	Percent
Business Owner	3	30%
Executive Director	2	20%
Animal Services Superintendent	1	10%
Animal Control Officer	1	10%
Animal Care Technician	2	20%
Animal Shelter Manager	1	10%

Note. n=10

Table C6

Experienced a Government or Local Mandated Shutdown During the Covid-19 Pandemic

Item	Frequency	Percent
Yes	3	30%
No	7	70%
I don't know	0	0%

Note. n=10

Table C7

Businesses' Shutdown Duration

Item	Frequency	Percent
1-2 weeks	0	0%
3-4 weeks	0	0%
1-3 months	1	33.33%
Indefinitely	0	0%
Other	2	66.67%

Note. n=3

Table C8

Setbacks Reported by Facility Employees

Item	<i>M</i>	<i>SD</i>
My facility experienced setbacks due to supply shortages.	2.60	1.20
My facility experienced setbacks due to understaffing	3.10	1.04
My facility experienced setbacks due to a lack of animal food	4.20	0.87
My facility experienced setbacks due to lack of access to other resources	3.30	1.19
My facility experienced setbacks due to mandated local government shutdown	3.20	1.33

Note. n=10. Scale (1) = Strongly Agree to (5) Strongly Disagree

Table C8***Employee Opinions about Pandemic-Related Companion Animal Industry Changes***

Item	<i>M</i>	<i>SD</i>
There will likely be an increase in the number of pets that suffer from separation anxiety once the pandemic ends	4.30	0.64
Due to the Covid-19 pandemic the relationship between animal owners and pets has resulted in a stronger human-animal bond	4.10	0.83
The Covid-19 pandemic has had an effect on the companion animal industry	3.90	0.83
There will likely be an increase in separation anxiety in the number of pet owners once the pandemic comes to an end	3.90	0.94

Note. n=10. Scale (1) = Strongly Disagree to (5) Strongly agree

Table C9***Covid-19 Pandemic Timeline***

Item	<i>M</i>	<i>SD</i>
During 2020, the volume of residing animals or animal patients located at my facility	2.80	0.60
During 2021, the volume of residing animals or animal patients located at my facility	1.80	0.98
During 2020, the volume of clientele	2.50	0.67
During 2021, the volume of clientele	1.70	0.78
The prices that my facility charged for services in 2020	2.00	0.45
The prices that my facility charged for services in 2021	1.80	0.40
The demand for products and services provided by my facility in 2020	1.90	0.94
The demand for products and services provided by my facility in 2021	1.10	0.30

Note. n=10. Scale (1) Increased (2) No change (3) Decreased

Table C10***Protocols Established during Covid-19***

Item	Frequency	Percent
Mandatory temperature checks upon entering work	2	28.57%
Mandatory social distancing	2	28.57%
Mandatory face mask protocols	3	42.86%
Mandatory Covid-19 vaccination	0	0%

Note. n=7

Appendix D

Business Consent Form

Purpose

This study is part of an ongoing honors research thesis project at the University of Arkansas. Its purpose is to explore, investigate, and thoroughly report the impacts of the COVID-19 pandemic on the companion animal industry in Northwest Arkansas from early 2020 to present day. Many sectors of the companion animal industry have been overlooked throughout the course of the pandemic, including but not limited to: animal shelters, animal rescue organizations, animal day-care centers, and animal boarding facilities. This study aims to investigate specific effects of the pandemic on these businesses, their employees, and their business practices.

This survey should take no longer than 10-15 minutes. IRB protocol #[2201381645](#) was approved for this study by the University of Arkansas review committee. Data will be gathered using Qualtrics, an online survey platform, or the facility may opt to submit paper-based survey responses. If completing the online survey, we anticipate that your business' participation in this survey presents no greater risk than everyday use of the Internet. Completion of the survey will represent participants' implied consent to participate in this study. Data will be kept anonymous to the fullest extent possible. The results of this study may be used to inform external organizations about the study's findings through poster or oral presentations, or journal article submissions.

If you, as the business owner or office manager have questions or concerns about this study, you may contact Isabel Whitehead at 479-575-3345 or iwhitehe@uark.edu or student researcher Kayla DeSmet at kndesmet@uark.edu for additional information. For questions or concerns about you or your employees' rights as research participants, please contact Ro Windwalker, the University's IRB Coordinator, at (479) 575-2208 or by email at irb@uark.edu.

Statement of Consent

I have read the above information and have received answers to any questions I asked. I consent to the researchers forwarding me the survey link or printable survey to forward to my employees on the researchers' behalf.

Business Name:

Your Name (printed):

Your Signature:

Date:

Signature of person obtaining consent:

Date:

Printed name of person obtaining consent:

This consent form will be kept by the researcher for five years beyond the end of the study.