

Management factors that impact employees in rural veterinary practices

by

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B.S., Kansas State University, 2019

A THESIS

submitted in partial fulfillment of the requirements for the degree

MASTER OF SCIENCE

Department of Veterinary Biomedical Science
College of Veterinary Medicine

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2020

Approved by:

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Abstract

Recognizing the various ways different management factors can impact employees in rural veterinary practices is important for the success and wellbeing of both the employees and the practice. Three studies were conducted to evaluate any potential associations business management factors could have on rural veterinary practices. The first study evaluated overall job and career satisfaction, as well as, financial, physical, and emotional health of veterinarians. Most respondents were satisfied with their job (83.0%) and career (84.1%); both job and career satisfaction were higher when respondents believed they received adequate recognition. Health outcomes were found to be impacted by financial factors, staffing numbers, and receiving adequate recognition. The second study identified associations among administrative personnel and veterinarian turnover and compensation packages. Lower administrative personnel turnover was associated with the presence of veterinarian retirement plans, asset protection plans, new associate compensation packages, and the number of veterinarians leaving the practice. Lower veterinarian turnover was associated with veterinarian ownership and the number of administrative personnel leaving the practice. Higher owner compensation packages were associated with longer practice establishment, use of marketing plans, and more veterinarian annual vacation days. Higher compensation packages for new associates were associated with more administrative personnel, use of marketing plans, more all-staff meetings, more veterinarian annual vacation days, and more hiring of administrative personnel. Higher compensation packages for 10-year associates were associated with more administrative personnel, more all-veterinarian and all-staff meetings, fewer veterinarian hours per week, more hiring of administrative personnel, and fewer administrative personnel leaving the practice. The third study determined the perceived presence of gender bias from both clients and employers,

and during the hiring process in regards to the number of applications submitted and interviews conducted. The graduation year was found to be significantly associated with the perception of gender bias from current clients, and this effect was modified by gender. Regarding the perception of gender bias from clients in the first year of practice, graduation year and gender were both significantly associated. The perceived presence of gender bias from employers in the first year of practice was found to be significantly associated with gender. The number of applications submitted for one first position was associated with graduation year, gender, and being the first of your gender at the practice. The number of interviews received for one's first position was significantly associated with graduation year. Many management strategies were evaluated during these studies. Understanding how these strategies impact employees can influence satisfaction, health, retention, compensation, and equality in rural practices.

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Acknowledgements

Completion of my graduate program would not have been possible without the direction of Dr. Brad White, my committee Chairman. I am grateful for Dr. White's constant guidance, support, and belief in me during my program. Thank you for serving such an influential role in my life the past two years.

Thank you to Dr. Cassie Jones, Dr. Bob Weaber, and Dr. Chuck Dodd for serving on my graduate committee. Each of you have provided me with valuable insight I will continue to use, both professionally and personally.

The members of the Beef Cattle Institute have become friend and colleagues during my time here. Thank you for all of the help and support you have shown me. I would also like to say thank you to my friends who have made my time in Manhattan and at Kansas State University such a memorable journey.

I would also like to say a special thank you to my parents Jerry and Cristi, my brother Jack, and my fiancé Trevor. Many of my goals in life would not have been possible without all of you. Thank you for the constant support, guidance, and love you have always shown me.

Introduction

Employee satisfaction is important for the success of rural veterinary practices for many reasons, including business performance, financial health, and recruitment and retention of employees. Providing information to practice owners, managers, and employees on areas of improvement can potentially increase employee job satisfaction, employee retention, compensation packages, and gender equality in rural veterinary practices. Each chapter of this thesis has been dedicated to a specific area of research regarding employee satisfaction. Chapter 1 discusses overall job and career satisfaction, as well as, financial, physical, and emotional health of veterinarians. Chapter 2 focuses on turnover rates among administrative personnel and veterinarians, and compensation packages for new associates, 10-year associates, and practice owners. Finally, chapter 3 dives into potential gender biases in the veterinary profession relating to employers, clients, and the hiring process.

Identifying components of the veterinary field impacting satisfaction among recent graduates is an area of research that could lead to industry changes that increase job satisfaction and employee retention. There are many aspects of the veterinary field that can impact satisfaction; research on specific satisfaction drivers for recent graduates is lacking in the literature currently. The goal of the first study was to identify potential factors that could influence job and career satisfaction in veterinarians less than 10 years from graduation. Additionally, secondary outcomes regarding various health outcomes were assessed.

Business management strategies are important aspects of a veterinary practice that are not always used. Understanding how business management impacts employee longevity and retention and compensation packages can be critical for the success of a practice. The second study identified business management factors that potentially influence administrative personnel

and veterinarian turnover and compensation packages for new associates, 10-year associates, and practice owners in rural veterinary practices.

Conversations around gender bias in the veterinary profession have come to the surface in recent years as the percent of females in the industry continues to rise. Knowing the rate at which gender bias is being perceived from both clients and employers is an important area of focus for rural practices. It is also critical to determine if gender bias is happening during the hiring process. The third study focused on identifying the level of gender bias perceived by both clients and employers, and potential factors associated with the application and interview process for applying for the first job following graduation.

Chapter 1 - Factors influencing job and career satisfaction in veterinarians 10 years or fewer from graduation

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Acknowledgements: As published in the 2020 American Association of Bovine Practitioners conference proceedings.

Abstract

Retention of veterinarians in practice is critical to long-term practice success. Understanding factors influencing satisfaction can provide information for practice managers to positively influence the work environment. The study objective is to identify potential factors influencing job and career satisfaction in veterinarians less than 10 years from graduation. Secondary outcomes include factors influencing current financial, physical, and emotional health. A cross-sectional, anonymous online survey with 82 complete responses were used for analysis. Respondents were representative of recent graduates and most respondents were satisfied with their job (83.0%) and career (84.1%). Both job and career satisfaction were higher when respondents believed they received adequate recognition. Financial health was associated with technician-to-veterinarian ratio, adequate recognition, current debt, and pay raise frequency. Physical health was associated with length at the current job and current debt. Emotional health

was significantly associated with years at the current job, having held an internship, and technician-to-veterinarian ratio. In general, most veterinarians within 10 years of graduation were satisfied with their job and career choice. Several factors influenced job satisfaction, career satisfaction, and financial, physical, and emotional health. Understanding these factors can help employers and employees maintain a healthy working environment.

Keywords: veterinary career satisfaction; employee retention

Introduction

Understanding factors impacting overall job and career satisfaction within veterinary medicine is important for not only the future of the profession, but for the wellbeing of the clients they serve and the animals for whom they are responsible. Workload, educational debt-to-income ratio, and work-life balance all could impact job and career satisfaction.^{2,6} Improved understanding of veterinary specific factors that influence satisfaction in recent graduates could facilitate changes to improve job satisfaction and employee retention. Several components of the job can influence overall satisfaction, but little work has been done focusing on relatively recent graduates. Physical, emotional, and financial health are also important components of overall professional career satisfaction. Despite the importance of these areas, only sparse data exists on factors influencing these health aspects in recent graduates.

Improved understanding of factors driving job satisfaction, financial, emotional, and physical health could greatly assist in promoting a positive working environment. This information could improve employee retention and reduce the need for continued recruitment of highly skilled professionals. The objective of this research was to identify potential factors

influencing job and career satisfaction in veterinarians who graduated from Kansas State University's College of Veterinary Medicine 10 or fewer years prior to the survey. Secondary outcomes include identifying factors influencing current financial, physical, and emotional health.

Materials and Methods

The survey instrument was designed by the research team and reviewed by the Kansas State University Institutional Review board and deemed exempt from needing full IRB review. This survey was distributed through a listserv of Kansas State University College of Veterinary Medicine Alumni consisting of 1,416 alumni and was first available on November 1, 2018. The target audience was practitioners with no more than 10 years since graduation; thus, the email list was constructed with only those practitioners targeted and the survey description clearly described the target population.

Primary study outcomes assessed current job and career satisfaction. These outcomes were assessed using a response scale adapted from a five-point Likert-type scale with one being extremely dissatisfied and five being extremely satisfied. Secondary study outcomes included a self-assessment of current financial, physical, and emotional health. A similar response scale was utilized with one indicating very unhealthy and five indicating extremely healthy. To further analyze the data, the Likert-type scale responses were then grouped into two categories with a response of one, two, or three being deemed as not satisfied/unhealthy and a response of four or five being deemed satisfied/healthy.

Two questions were asked for respondents to further descriptively evaluate job satisfaction: 1) if you could change one thing to increase job satisfaction it would be: and 2) what

is your biggest current source of job satisfaction. Both questions assessed the same series of response areas: compensation, time off work, relationships with co-workers/boss, relationships with clients, community, types of cases, and other.

The survey queried respondents on potential factors hypothesized to be related to satisfaction and health outcomes. Factors assessed included: graduation year, gender, years worked in current workplace, current practice focus, practice role, current community size, numbers of veterinarians and technicians in the practice, hours of CE attended, salary raise frequency, base salary (and method of pay), professional organization membership, hours worked per week, nights on call, receiving adequate recognition, student debt at graduation, and current student debt. Most factors were assessed on a closed question with independent choices except for questions with numerical answers which were entered as free text.

Logistic regression models were used to determine potential associations among various survey responses and the outcomes of interest (job and career satisfaction, financial, physical, and emotional health). Univariate logistic models were created for each potential factor and the binomial outcome of interest and a final multivariable model was performed using factors identified as associated with the outcome variable with a significance level of $P < 0.10$. The final model was generated through an iterative process until only factors associated with the outcome at $P < 0.05$ remained. Both Akaike Information Criterion and Bayesian Information Criterion were applied in the model selection process.

Results

Responses were received from 99 veterinarians engaged in various career pathways within the profession, and after removing incomplete responses, 82 survey responses were

included in the statistical analysis. Survey respondents were 63% female and 37% male, which is consistent with the data for 2018 U.S. Employed Veterinarians in private practice of 59.9% female and 40.1% male.¹ Among respondents, 92% work in private practice with 69% being associates and 60% working in communities larger than 10,000 people. The mean years since graduation among the survey respondents was 4.5 years with a median of 5 years since graduation. The overall average debt at graduation was \$129,265 and an average annual debt reduction of \$7,607 per year since graduation.

Respondents were asked to indicate what drives current satisfaction and what would improve current satisfaction levels. Current satisfaction was primarily driven by types of medical/surgical cases routinely encountered and relationships both with co-workers and clients. Respondents noted that time off from work and increased compensation would improve their current satisfaction. Table 1.1 shows the breakdown of possible categories and responses by overall percentage of respondents.

Overall, 83.0% of respondents indicated that they were satisfied with their current job. The only survey variable significantly associated with job satisfaction was the perception of receiving adequate recognition from current boss. Respondents who indicated they believed they were receiving adequate recognition were more satisfied (90.0% +/- 3.9) compared to those that did not believe they received adequate recognition (63.6% +/- 10.3).

Within our data, 84.1% of respondents indicated they were satisfied with their career. Career satisfaction was significantly associated with adequate recognition and the time spent doing non-veterinary activities. Respondents who received adequate recognition were more likely to be satisfied in their career (92.2% +/- 3.6) compared to those who did not receive adequate recognition (70.6% +/- 11.5). Non-veterinary activities were defined in the survey as

employee management, financial, inventory, and respondents who indicated they were satisfied with their career spent a lower percent of time (16.7%) in non-veterinary activities compared to those who indicated they were not satisfied with their career (31.7%).

In the model evaluating financial health, technician-to-veterinarian ratio, adequate recognition, level of current debt, and pay raise frequency were found to be significantly associated with the outcome. Our data indicated that 67.1% of the population self-indicated as financially healthy. The average technician to veterinarian ratio was categorized with the first category representing less than or equal to 1, the second greater than 1 but less than or equal to 1.55, the third greater than 1.55 but less than or equal to 2, and the fourth was the remainder. Respondents in the first two categories were more likely to report financial health (62%, 61.7%, respectively) compared to practices with higher technician to veterinarian ratios (7.4%, 27.1%). Respondents indicating they were financially healthy were more likely (55.3% +/- 12.4) to report receiving adequate recognition compared to those stating they were not financially healthy (18.4% +/- 12.9). The level of current debt for those that indicated they were financially healthy was found to be \$61,551 (SD: 85,450.2) and those not financially healthy at \$162,597 (SD: 120,996.6). Pay raise frequency was also found to be a significant influencer on financial health. The majority of the population indicated receiving a pay raise either annually or more frequently at 37.8% or less frequently than annually, but within every three years at 45.2%. Among those that received a pay raise annually or more frequently, 71.0% indicated being financially healthy and those receiving a pay raise less frequently than annually, but within every three years indicated 73.0% being financially healthy.

Most (92.7%) of respondents self-reported as being physically healthy. The likelihood of reporting as physically health was associated with years since graduation and current debt level.

Average current debt for those reporting physical health was \$91,092 (SD: 109,147) compared to those reporting not physically healthy of \$159,166 (SD: 126,820). The average number of years that physically healthy individuals had been at their current job was 2.9 (SD: 2.22) years compared to those not physically healthy at 4.7 (SD: 3.02) years.

Most respondents (85.3%) self-reported as feeling emotionally healthy, and this outcome was only associated with completing an internship. All respondents (100%) that completed an internship reported being emotionally healthy while only 83% of respondents did not complete an internship and reported good emotional health.

Discussion

Understanding the factors that could impact satisfaction for veterinarians early in their career is extremely important. Our data revealed potential factors associated with job and career satisfaction, as well as financial, physical, and emotional health statuses. An Australian study of veterinarians from entry to 10 years after graduation reported that 69% of veterinarians in a mixed practice said they would choose to be a veterinarian again compared to only 43% of those in other veterinary roles.⁵ Our survey did not specifically ask questions to ascertain whether or not early-career veterinarians would choose the same career path again, but with a high percentage of respondents reporting they were satisfied with their career and job, one could make the assumption that early-career veterinarians in this survey would choose to become a veterinarian again if able to re-establish their education and career pathway.

Comparison of data revealed that the sample population of recent graduates from the College of Veterinary Medicine at Kansas State University was in fact representative of the total population of recent veterinary graduates in North America. According to the data, student debt

at graduation was \$129,400 on average, with a median of \$104,000 and a range from \$0 - \$386,000. This information is consistent with data presented by Bain and Salois which indicated that 1,495 (54.2%) respondents accumulated more than \$150,000 in debt during veterinary school and the percentage who reported no educational debt had increased from 14.2% in 2016 to 17.3% in 2018.³ Another report detailed that 2018 graduates had an average of \$143,000 in debt, which is an increase of roughly \$10,000 from 2017 reports.⁸ Additionally, survey respondents indicated they worked an average of 48 hours per week. The previously mentioned article by Bain and Salois indicated that those in private practice worked 46 hours per week and those in public practice worked an average of 47 hours per week, verifying our sample to veterinary population.³

Receiving adequate recognition was significantly associated with job and career satisfaction. According to the study *The Effects of Employee Recognition, Pay, and Benefits on Job Satisfaction: Cross Country Evidence*, receiving adequate recognition does actually impact one's job satisfaction.⁹ Recognizing one's performance is a very simple, and important way to help ensure job satisfaction among employees.

Factors such as technician to veterinarian ratio, adequate recognition, level of current debt, and raise frequency were found to be associated with overall financial health. Roughly two-thirds of respondents (67.1%) indicated they were financially healthy. Our data would support a hypothesis that a lower technician to veterinarian ratio could be financially advantageous to early-career veterinarians; however, other studies have reported a positive association between technician to veterinarian ratio and practice economic wellbeing.⁴ When discussing financial health, it is no surprise that current level of debt and raise frequency would also be found significant. It would be logical to assume within this population that if a large amount of current

debt is coupled with infrequent increases in salary, few respondents would feel financially healthy. Being able to repay educational debt is a concern for many early-career veterinarians; frequent raises are likely to make the debt seem more manageable compared to the likelihood of receiving a raise less often than every three years in this study.

Overall physical health was impacted by years at the current job and level of current debt. Nearly all (92.7%) of the early-career veterinarians indicated they were physically healthy. Higher levels of debt were associated with an increased likelihood of self-reporting as physically unhealthy. This could be due to with debt-associated stress leading to health or conversely, being unhealthy contributing to a greater level of debt.

The majority of our population self-reported as being emotionally healthy, and this was only associated with having held an internship. This could be due to the fact that those completing an internship were prepared at a different level to complete their job; although, the survey encompassed only the first 10 years of their career so it is surprising that this effect would be long term. While one study reported that holding an internship did not change their initial salary, another mention that 94% of respondents thought that having an internship did make them a better veterinarian.⁷ While having held an internship was significant, a small portion of our population actually held an internship.

As a limitation of this study, we recognize that the responses for financial, physical, and emotional health were all self-reported assessments. There was no corroborating data collected or assessed for each individual to determine other measures of financial, physical, or emotional health. Additionally, as with all cross-section survey data, we are unable to determine causation among the outcomes of interest and the associated factors. The small sample size also did not allow for the model data to be interpreted and utilized in the analysis.

Within the primary outcomes of job satisfaction and career satisfaction, receiving adequate recognition were found to be important factors. There were several factors that appeared as reoccurring themes within the secondary outcomes of financial, physical, and emotional health such as level of current debt, years at the current job, and technician to veterinarian ratio. This information is important to all individuals involved in the field. Client, patient, and personal wellbeing are all areas that can be impacted by understanding influential factors. These survey data give a better understanding on making recommendations for improvements and future areas of research that are needed still.

Tables

Table 1.1 Percent of respondents from the survey that indicated both current satisfaction drivers and drivers that would improve current satisfaction.

	Current Satisfaction (%)	Satisfaction Improvement (%)
Community/Geographic Location	5	11
Compensation	13	25
Relationships with Clients	20	6
Relationships with Co-Workers	21	9
Time Away/Off Work	11	39
Types of Cases/Animal Interactions	25	3
Other	3	5
Not Listed	2	2

Chapter 2 - Factors influencing administrative personnel and veterinarian turnover and compensation packages in rural practice over a 5-year period

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Acknowledgements: Research funded in part through the USDA Veterinary Services Grant Program award number: 2016-70024-25884. We thank the Academy of Veterinary Consultants and the American Association of Bovine Practitioners for their help with questionnaire distribution and response. Manuscript as submitted to the Journal of American Veterinary Medical Association.

Abstract

Objective: Identify factors influencing administrative personnel and veterinarian turnover, and compensation packages of owners, new associates, and 10-year associates.

Sample: A questionnaire was sent to AVC and AABP list-serves consisting of approximately 2,007 members; 125 complete responses were received.

Procedures: Data from responses were analyzed according to data type. A multivariable model was created using factors identified as associated with the outcome variables with a significance level of $P < 0.05$.

Results: Lower administrative personnel turnover was associated with the presence of veterinarian retirement plans, asset protection plans, new associate compensation packages, and the number of veterinarians leaving the practice. Lower veterinarian turnover was associated with veterinarian ownership and the number of administrative personnel leaving the practice. Higher owner compensation packages were associated with longer practice establishment, use of marketing plans, and more veterinarian annual vacation days. Higher compensation packages for new associates were associated with more administrative personnel, use of marketing plans, more all-staff meetings, more veterinarian annual vacation days, and more hiring of administrative personnel. Higher compensation packages for 10-year associates were associated with more administrative personnel, more all-veterinarian and all-staff meetings, fewer veterinarian hours per week, more hiring of administrative personnel, and fewer administrative personnel leaving the practice.

Conclusions and Clinical Relevance: Administrative personnel and veterinarian turnover was impacted by business management practices and number of personnel. Additionally, numerous business management practices were important when evaluating compensation packages for new associates, 10-year associates, and practice owners.

Keywords: economics, practice management, veterinary turnover, veterinary compensation

Introduction

Many factors play a role in recruiting, hiring, and retaining employees within the veterinary profession. The process of replacing an employee can affect customer satisfaction, business operations, and financial stability.¹⁰ Compensation packages for new associates can

impact the overall recruitment process for young professionals, especially with economic challenges related to high student debt burden. Total compensation also impacts employee retention, and while data exist on starting salaries of veterinary professionals, sparse data describe compensation packages for associates with practice experience and owner compensation packages.¹¹ Understanding factors associated with compensation packages and earning potential could help job seekers and practice managers better manage the recruitment and retention process.

The predicted average growth rate for all occupations for 2018-2028 is 5%, but the veterinary profession has grown at a much faster rate of almost 20%.¹² A growing number of positions and number of available veterinary personnel can lead to greater turnover.

Understanding the factors that lower turnover rates is now more important than ever. Assuming that high levels of personnel turnover are undesired in most veterinary practices, manageable factors associated with personnel dynamics warrant exploration. Some veterinary practice consultants suggest that many veterinary practices fail to optimize practice management because they are not incorporating proven strategies that increase performance.¹³ A better understanding of specific associations among business practices and personnel longevity /compensation may generate useful guidance for veterinary practices.

Understanding turnover and compensation is important for all practices, but there is little research currently available to rural, mixed animal practices in these areas. The objective of this research is identifying business management factors potentially associated with administrative personnel and veterinarian turnover and compensation packages in rural practices over a 5-year period.

Materials and Methods

The survey was designed to determine if business management strategies and demographics have significant impacts on personnel turnover and compensation packages. The questionnaire was designed by the research team and reviewed by the Kansas State University Institutional Review board and deemed exempt from needing full IRB review. This questionnaire was distributed on September 9, 2019 through list-servs at both the Academy of Veterinary Consultants to 829 members and the American Association of Bovine Practitioners consisting of approximately 2007 members (unknown number of duplicate subscribers between the two electronic lists). Questionnaire responses were reviewed for completeness and outcome variables assessed for transformation for the purpose of statistical analysis; incomplete responses were removed from the dataset.

Outcomes of administrative personnel turnover, veterinarian turnover, owner compensation package, new associate compensation package, and ten-year associate compensation package were created for use in model statistics. Administrative turnover was a continuous variable created using the number of administrative personnel that left in the last 5 years divided by the current number of administrative personnel. The outcome of veterinarian turnover was a continuous variable created from the number of veterinarians that left in the last 5 years divided by the current number of licensed veterinarians. Survey responses for compensation packages were categorized in \$5,000 intervals from <40,000 to \geq 250,000, and a continuous variable was created utilizing the median of the \$5,000 interval categories for use in the models of new associate, 10-year associate, and owner compensation packages. Several variables used in the statistical models were categorized prior to analysis due to hypothesized potential non-linear relationships with the outcomes of interest and outliers in the data. A list of

variables included in the final models for each of the outcomes is shown in Table 2.1. A complete list of survey questions is available in the supplementary material.

Univariate generalized linear models were created for each potential factor and outcome of interest, and a final multivariable model was created using factors identified as associated with the outcome variables with a significance level of $P < 0.10$. The final models were generated through an iterative process to include only factors associated with the outcomes at $P < 0.05$. Both Akaike Information Criterion and Bayesian Information Criterion were applied in the model selection process.

Results

There were 281 respondents engaged in work at a veterinary practice; after removing respondents with incomplete responses, 125 survey responses were analyzed. These data indicated practices responding to the survey, on average (\pm St Dev), employed 3.8 (\pm 8.6) administrative staff members, 3.7 (\pm 3.0) licensed veterinarians, and 4.2 (\pm 4.9) veterinary technicians. Respondent veterinarians worked an average of 48.9 (\pm 11.6) hours per week. The average number of veterinarians having ownership of the practice averaged 1.9 (\pm 1.3). Practices from 31 different states responded to the questionnaire with most (37.3%) being located in AABP District 7 (Iowa, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota). Practices were established between 1917 and 2019, but the majority (35.7%) were between 1971 and 1990. Additionally, a majority (59.5%) of the practices were located in communities of less than 5,000 people.

Respondents were asked to indicate how many administrative and veterinarian personnel had left the practice and how many were hired in the previous 5 years. On average, respondents

indicated 3.6 (\pm 5.3) administrative personnel and 1.3 (\pm 1.8) veterinarians had left the practice in the past 5 years. Additionally, a per practice average of 5.5 (\pm 7.3) administrative personnel and 2.2 (\pm 2.5) veterinarians were hired in the past 5 years. Administrative personnel turnover (administrative personnel left/current administrative personnel) over a 5-year period ranged from 0 to 12 with a median of 0.92. For example, if 2 administrative personnel left in the past 5 years, and the current number of administrative personnel is 2, then the practice 5-year turnover would be 1.0; the administrative personnel turnover would then be 20% turnover on an annual basis. A graph of administrative personnel turnover is presented in Figure 2.1. Veterinarian turnover over a 5-year period (veterinarians left/current veterinarians) ranged from 0 to 7 with a median of 0.33. For example, if 1 veterinarian left in the last 5 years, and the current number of veterinarians is 3, then the practice 5-year turnover would be 0.33; the veterinarian turnover would then be 6% turnover on an annual basis. A graph of veterinarian turnover is presented in Figure 2.2. Several factors identified in the survey were significantly associated with administrative personnel and veterinarian turnover (Table 2.2). Model output indicates the predicted amount of turnover over a 5-year period.

Administrative personnel turnover (5-year) was impacted by offering a veterinarian retirement plan ($P = 0.02$), use of an asset protection plan through business or corporate structuring ($P = 0.03$), the number of veterinarians that left in the past 5 years ($P < 0.01$), and new associate compensation packages ($P = 0.02$). The presence of a veterinarian retirement plan decreased the administrative personnel turnover (2.76 ± 0.51) when comparing to practices that did not offer a veterinarian retirement plan (4.11 ± 0.6). The use of an asset protection plan through business or corporate structuring also decreased the administrative personnel turnover (2.65 ± 0.42) when compared to practices without an asset protection plan through business or

corporate structuring (4.22 ± 0.73). The number of veterinarians that left in the past 5 years indicated as more veterinarians left, the administrative personnel turnover also increased. Practices having no veterinarians leave experienced less administrative personnel turnover (1.9 ± 0.52) when compared to practices that lost 4 or more veterinarians (6.16 ± 1.1). The compensation packages of new associates significantly impacted the amount of administrative personnel turnover. New associate compensation packages of $< \$55,000$ saw less administrative turnover (2.5 ± 1.3) than practices offering new associate compensation packages of $\$75,000$ - $\$84,999$ (4.4 ± 3.2).

Veterinarian turnover (5-year) was impacted by the number of veterinarians with ownership ($P < 0.01$) and the number of administrative personnel that left in the past 5 years ($P = 0.03$). The number of veterinarians with ownership at a practice had a significant association with veterinarian turnover; practices with 1 or less veterinarians with ownership experienced more veterinarian turnover (0.77 ± 0.10) compared to practices with 3 or more veterinarians with ownership (0.22 ± 0.17). Additionally, as the number of administrative personnel that left in the past 5 years increased, so did the level of veterinarian turnover. Practices having no administrative personnel leave experienced significantly less veterinarian turnover (0.17 ± 0.14) compared to those having 4 or more administrative personnel leave (0.75 ± 0.13).

Respondents were asked to indicate the total compensation package for owners, new associates and 10-year associates. Available total compensation package categories started at $< \$40,000$ and increased by $\$5,000$ increments to $\geq \$250,000$. Owner compensation packages ranged from $< \$40,000$ to $\geq \$250,000$, with the median falling in the category of $\$125,000$ to $\$129,999$. A summary of the owner compensation packages is presented in Figure 2.3. Compensation package categories for new associates ranged from $< \$40,000$ to $\$105,000$ -

\$109,999. The median compensation package for new associates was in the \$75,000 to \$79,999 category. This breakdown of new associate compensation packages is shown in Figure 2.4. Ten-year associate compensation package categories ranged from \$85,000-\$89,999 to \$170,000-\$174,999, with a median in the \$100,000-\$104,999 category. A summary of the 10-year associate compensation packages is presented in Figure 2.5. Several factors in the survey were significantly associated with the outcomes of owner compensation, new associate compensation, and 10-year associate compensation packages (Table 2.3). Model output indicated the predicted compensation packages.

Owner compensation packages were associated with the year of establishment ($P < 0.01$), use of a marketing plan ($P < 0.01$), and the number of annual vacation days per veterinarian ($P = 0.01$). A practice's year of establishment was associated with the owner's compensation package. The longer a practice had been in operation, the larger the owner compensation package; practices established before 1950 indicated an owner compensation package of \$147,744 (\pm \$16,181) compared to those established in 2011 or later at \$111,421 (\pm \$14,135). Practices that noted use of a marketing plan reported a significant increase in the owner's compensation package (\$164,380 \pm \$11,828) compared to those practices that did not use a marketing plan (\$133,903 \pm \$9,035). The number annual vacation days per veterinarian also showed a significant association with owner's compensation packages. Respondents indicating 1-7 annual vacation days per veterinarian reported significantly smaller owner compensation packages (\$128,436 \pm \$12,151) compared to those reporting 28+ annual vacation days per veterinarian (\$240,781 \pm \$31,098).

Compensation packages for new associates were associated with the number of administrative personnel ($P < 0.01$), use of a marketing plan ($P = 0.02$), frequency of an all-staff

meeting ($P < 0.01$), the number of annual vacation days per veterinarian ($P < 0.01$), and the number of administrative personnel hired in the past 5 years ($P < 0.01$). The compensation package for new associates increased with the number of administrative personnel; practices with no administrative personnel indicated a new associate compensation package of \$65,185 (\pm \$3,595) compared to those with 4+ administrative personnel at \$78,185 (\pm \$2,953). Respondents that indicated the use of a marketing plan at the practice also noted an increased compensation package for new associates (\$78,384 \pm \$2,964) compared to those without a marketing plan (\$72,424 \pm \$2,279). The frequency of an all-staff meeting showed more frequent meetings was associated with increased compensation for new associates; practices with daily staff meetings reported \$80,734 (\pm \$4,507) in new associate compensation. The number of annual vacation days per veterinarian was associated with an increase in new associate compensation packages; practices offering no annual vacation days per veterinarian showed new associate compensation packages of \$52,670 (\pm \$7,944) compared to those offering 28+ annual vacation days per veterinarian at \$93,220 (\pm \$7,936). Additionally, the number of administrative staff hired during the previous 5 years was associated with larger new associate compensation packages, with those having hired 4 or 5 administrative personnel experiencing the largest new associate compensation packages (\$85,550 \pm \$3,160).

Compensation packages for 10-year associates were associated with number of administrative personnel ($P < 0.01$), frequency of an all veterinarian meeting ($P < 0.01$), frequency of an all-staff meeting ($P = 0.01$), the average hours per week per veterinarian ($P < 0.01$), number of administrative personnel hired in the past 5 years ($P < 0.01$), and number of administrative personnel that left in the past 5 years ($P < 0.01$). The number of administrative personnel at a practice was significantly associated with 10-year associate compensation

packages, with practices having only one administrative personnel experiencing the largest compensation package ($\$104,774 \pm \$3,005$). An increased frequency of an all-veterinarian meeting was associated with an increase in 10-year associate compensation packages; practices with daily meetings reported a compensation package of $\$104,127 (\pm \$63,879)$ compared to practices that never had an all-veterinarian meeting at $\$89,548 (\pm \$4,753)$. The frequency of an all-staff meeting also was associated with the compensation packages for 10-year associates with monthly meetings resulting in the largest packages ($\$102,548 \pm \$2,613$). The average number of hours per week per veterinarian was associated with a larger compensation package; veterinarians working 65+ hours per week received $\$115,955 (\pm \$5,196)$ compared to those working less than 44 hours per week at $\$76,960 (\pm \$3,236)$. The more administrative personnel a practice hired in the last 5 years, the larger the 10-year associate compensation package. Practices having hired no administrative personnel noted significantly smaller compensation packages ($\$74,858 \pm \$5,893$) compared to those having hired 4-5 administrative personnel in the past 5 years ($\$116,510 \pm \$3,674$). Finally, the more administrative personnel that left in the past 5 years, the smaller the 10-year associate compensation package. Practices that had no administrative personnel leave offered $\$111,542 (\pm \$4,196)$ compared to those having 4+ administrative personnel leave offered $\$86,655 (\pm \$4,638)$.

Discussion

This survey reveals that veterinary and administrative personnel turnover was associated with several factors: offering a veterinarian retirement plan, utilizing an asset protection plan, the number of veterinarians and administrative personnel that left in the past 5 years, new associate compensation package, and the number of veterinarians with ownership in the practice. The

turnover rates from these data were calculated over a 5-year period, but the averages for administrative personnel and veterinarians was 1.8 and 0.56, respectively. These averages converted into an annual percentage base equates to 36% for administrative personnel and 11% for veterinarian turnover. The average turnover rate for all jobs in the U.S. range from 12%-15% on an annual basis.¹⁶ The growth rate for U.S. occupations is 4%; the growth rate for occupations in the veterinary field is much higher at 16%.¹² In addition to the increase in jobs, the number of graduates from veterinary colleges has increased roughly 1.8% per year in the past 30 years.¹⁵ As more jobs become available and more graduates are seeking full-time employment, job turnover could also increase over time.

This study identified potential management factors associated with employee turnover: utilizing an asset protection plan, sharing practice ownership, offering retirement plans, and knowing the number of employees leaving over time and addressing key issues for their leaving. A report from the *Advances in Economics and Business Journal* noted a positive relationship between organizational culture and management on the commitment and retention of employees.¹⁸ The way a practice is operated is not only important for financial success, but also for the culture and wellbeing of its employees.

The 2018 AVMA Report on The Market for Veterinary Services indicated mixed animal practice owners reported an average of \$134,000 in income and owners of predominately food animal practices reported an average of roughly \$95,000 in income for 2016.¹⁴ The data did not describe owner compensation by primary practice activities, but with a large percentage of respondents being from Midwest states, food animal practices and mixed animal practices would likely represent a large proportion of the data. The average owner compensation in their survey was \$134,820. Additionally, the report indicated associate compensation packages for food

animal predominate practices around \$75,000 and mixed animal practices slightly above \$70,000.¹⁴ This questionnaire asked for both new and 10-year associate compensation packages; new associates average \$77,340 and 10-year associates average \$99,460.

Based on the associations we found in our survey, possible business management practices to implement in order to decrease personnel turnover and improve compensation ability could be: use of a marketing plan, increased frequency of employee meetings, appropriate staff numbers for the practice workload, and a reasonable amount of annual vacation days and hours worked per week. The AVMA's Brakke business management and behavior study found several business management practices to be associated with overall incomes of practices; additionally, an increase in compensation was seen among practice owners, staying longer at a practice, and working more hours per week.¹⁷ Several business management factors were associated with compensation packages within this study, along with staff numbers and turnover rates.

There were several inherent weaknesses related to level detail in the questions and responses used in this survey. Several question topics, such as use of a marketing plan, were not clearly defined by multiple categories in the questionnaire sent to AVC and AABP members. Respondents that indicated practices were using a marketing plan could range from a well-structured and implemented marketing plan to simply having discussions around marketing with no actions taken. Additionally, as with all cross-sectional survey data, we are unable to determine causation among the outcomes of interest and the associated factors. A larger study including additional practice profitability indicators may better identify factors associated with personnel turnover and compensation levels.

Within the outcomes of administrative personnel and veterinarian turnover, business management practices and personnel numbers were found to be important factors. Additionally,

numerous business management practices were found to be important factors when evaluating compensation packages for new associates, 10-year associates, and practice owners.

Understanding the many factors what impact turnover and compensation is important to all practices, but especially those in rural areas that could be experiencing a workforce shortage.

This information provides a better understanding of business management factors that may impact both financial compensation and employee retention in veterinary practices and fuels future research to determine primary causal factors for these outcomes.

Figures

Figure 2.1: A distribution of the administrative personnel turnover from a survey of AABP & AVC members (n=125) with a mean of 1.77.

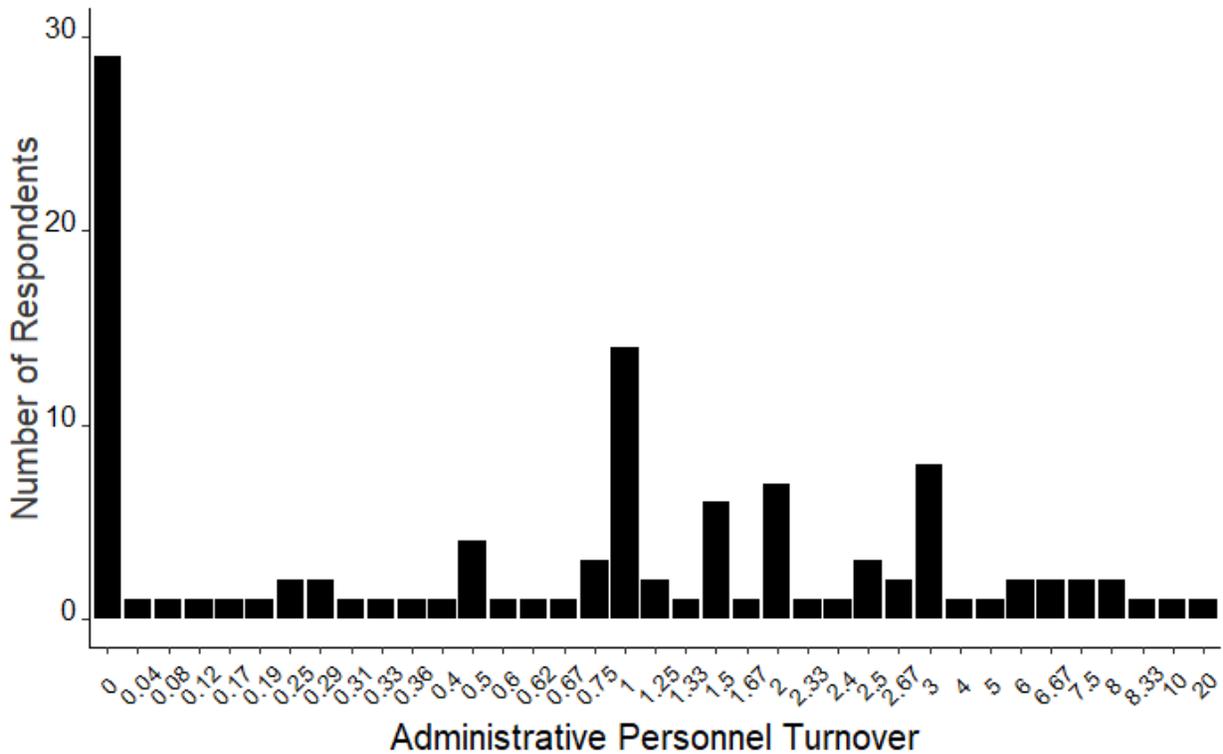


Figure 2.2: A distribution of the veterinarian turnover from a survey of AABP & AVC members (n=125) with a mean of 0.56.

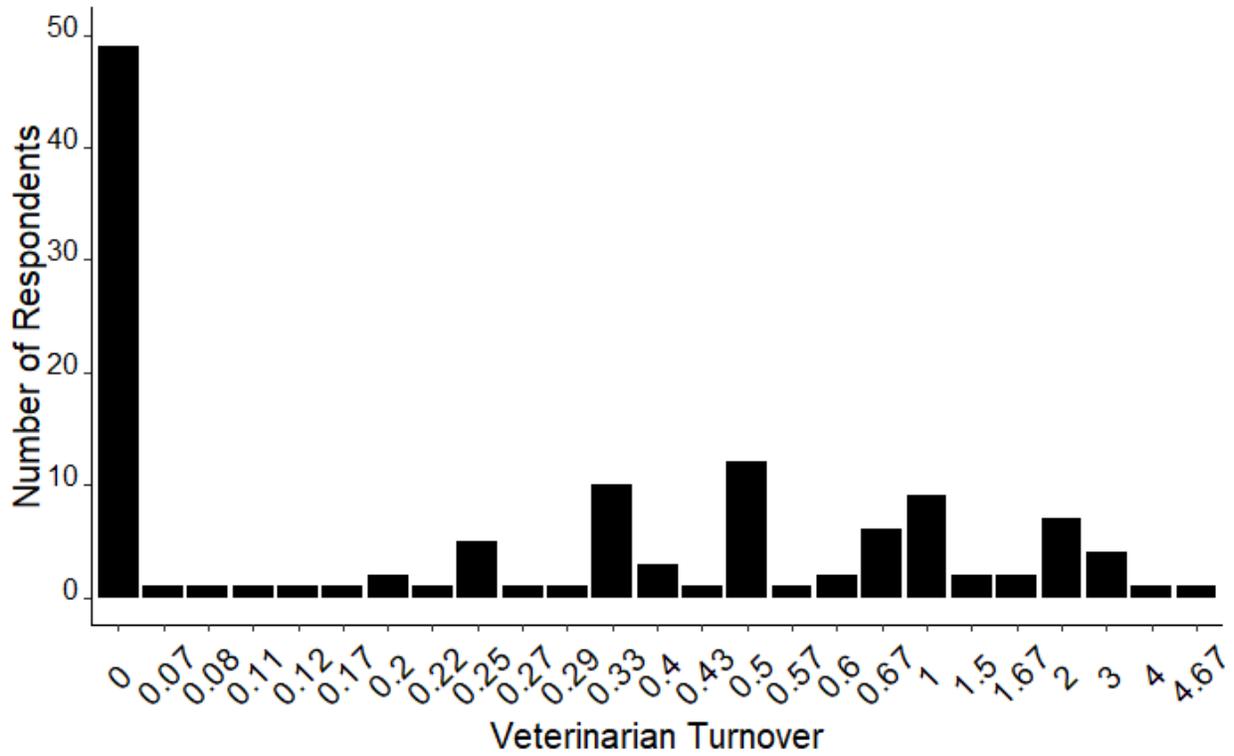


Figure 2.3: The distribution of owner compensation package from respondents of a survey of AABP & AVC (n=125) members regarding business management strategies with a mean of \$134,820.

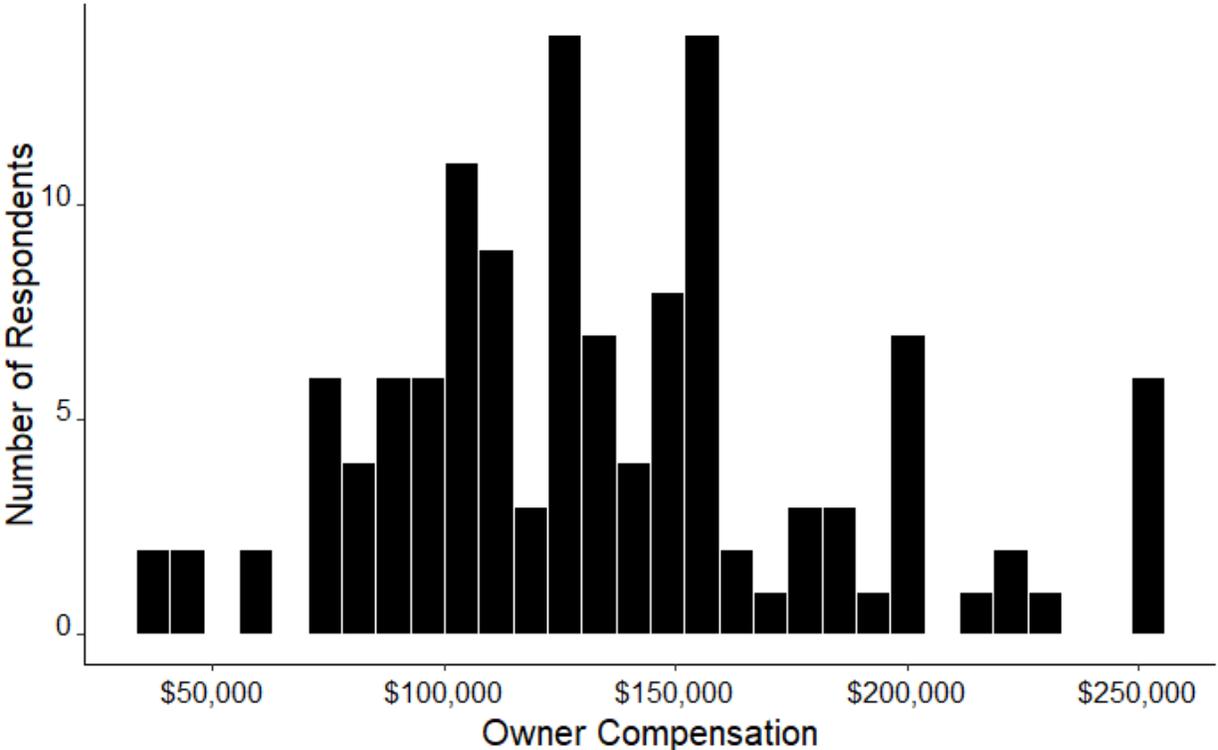


Figure 2.4: The distribution of new associate compensation package from respondents of a survey of AABP & AVC (n=125) members regarding business management strategies with a mean of \$77,340.

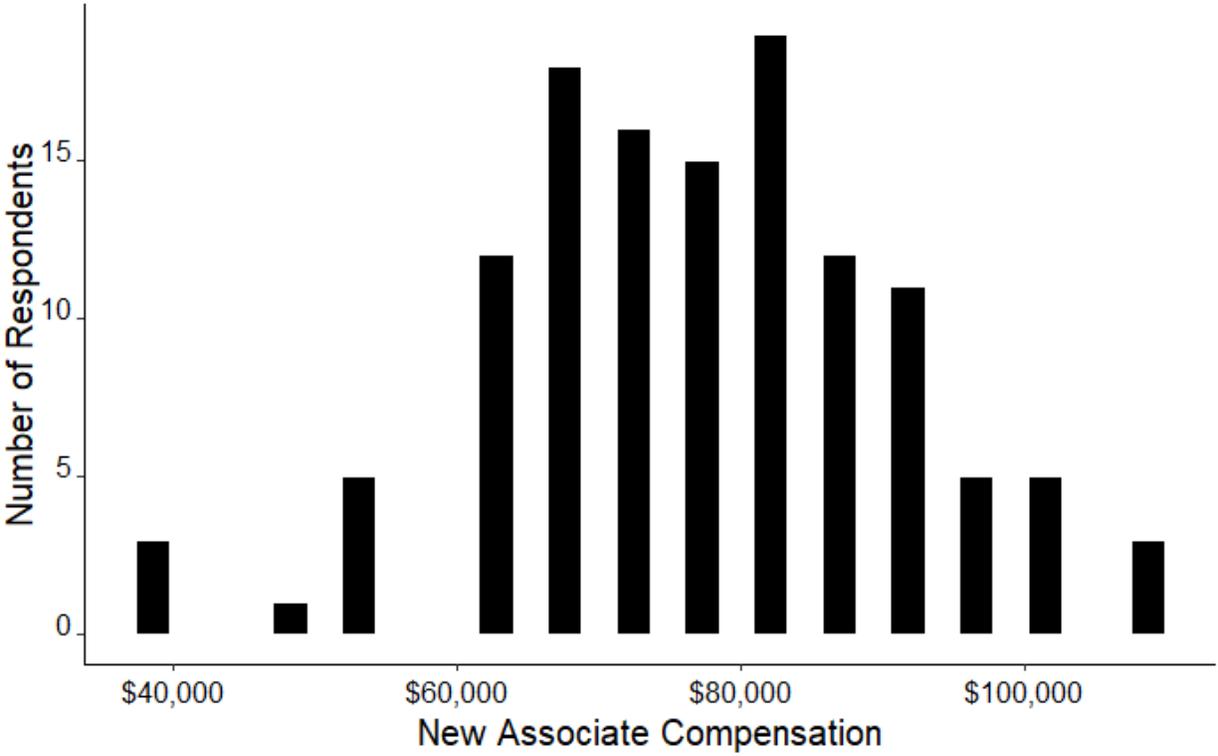
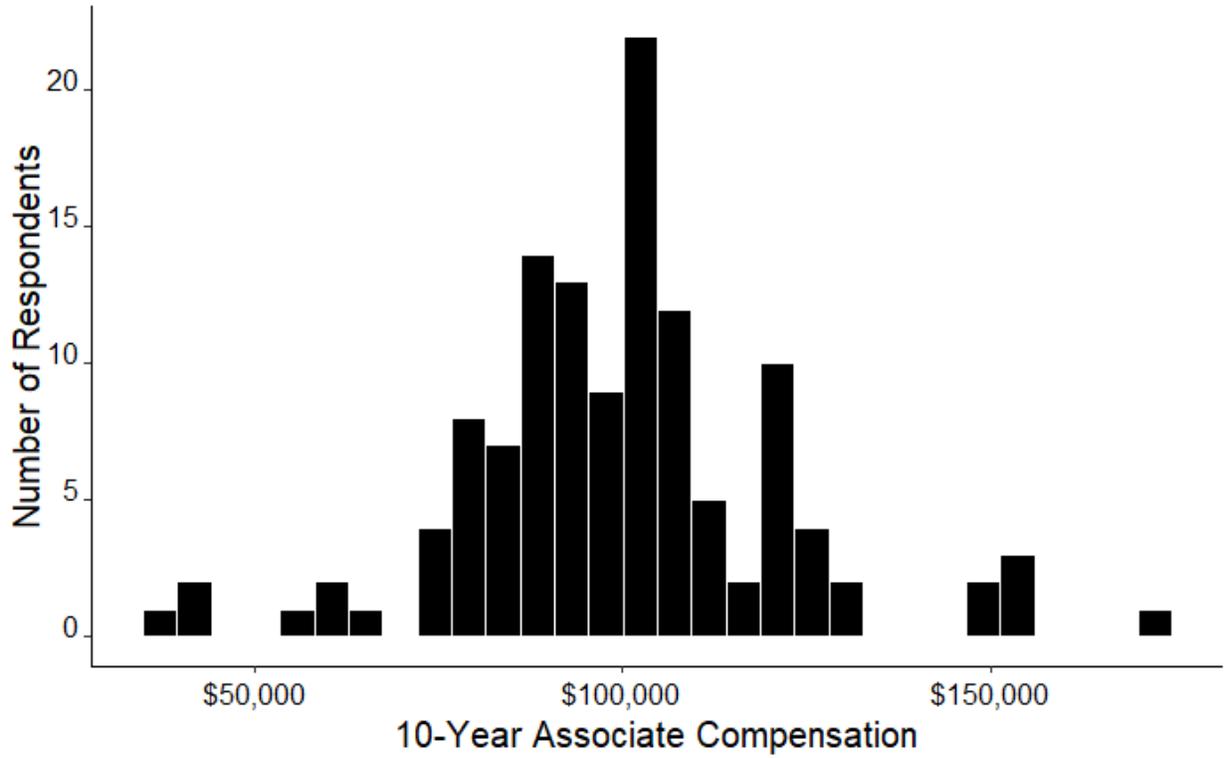


Figure 2.5: The distribution of 10-year associate compensation package from respondents of a survey of AABP & AVC (n=125) members regarding business management strategies with a mean of \$99,460.



Tables

Table 2.1: A list of variables utilized in final model predictions to determine if business management and practice demographics influence personnel turnover and compensation and the type of data utilized.

Survey Question	Original Variable	Model Variable
How many administrative personnel and non-staff are in your practice?	Continuous	0, 1, 2, 3, ≥ 4
Of the DVMs in your practice, how many of them have ownership in the practice?	Continuous	0-1, >1-2, ≥ 3
What year was your practice established?	Continuous	<1950, 1950-1970, 1971-2010, ≥ 2011
Does your practice use a marketing plan?	Yes/No	Yes/No
What is the total compensation package for a new veterinary associate in your practice? (salary plus value of benefits)	\$5,000 increments from <40,000 to $\geq 250,000$	<\$55,000, \$55,000-\$64,999, \$65,000-\$74,999, \$75,000-\$84,999, $\geq 85,000$
Does your practice offer a retirement plan for veterinary associates?	Yes/No	Yes/No
Does your practice have an asset protection plan through business or corporate structuring? (eg, LLC, Inc)	Yes/No	Yes/No
How often does your practice have a meeting with all the veterinarians in your practice?	Daily, Weekly, Monthly, Annually, Never	Daily, Weekly, Monthly, Annually, Never

How often does your practice have a meeting with the entire practice staff?	Daily, Weekly, Monthly, Annually, Never	Daily, Weekly, Monthly, Annually, Never
How many annual vacation days do veterinary associates in your practice receive?	0, 1-7, 8-14, 15-20, 21-27, ≥ 28	0, 1-7, 8-14, 15-20, 21-27, ≥ 28
On average, how many hours does a veterinary associate work per week in your practice? (one value, not a range)	Continuous	<45, 45-49, 50-54, 55-59, 60-64, ≥ 65
In the last five years, how many veterinary associates have left your practice?	Continuous	0, 1, 2, 3, ≥ 4
In the last five years, how many staff members have been hired in your practice?	Continuous	0, 1-2, 3, 4-5, ≥ 6
In the last five years, how many staff members have left your practice?	Continuous	0, 1, 2, 3, ≥ 4

Table 2.2: Summary of factors that were associated with administrative personnel and veterinarian turnover in a 5-year period from a survey of AVC & AABP members (n=125).

Administrative Personnel Turnover	Offer Veterinarian Retirement Plan	P = 0.02
	Have Asset Protection Plan	P = 0.03
	Number of Veterinarians Left in the Past 5 Years	P < 0.01
	New Associate Compensation Package	P = 0.02
Veterinarian Turnover	Number of DVMs with Ownership	P < 0.01
	Number of Staff Left in the Last 5 Years	P = 0.03

Table 2.3: Summary of factors that were associated with outcomes of owner compensation, new associate compensation, and 10-year associate compensation from a survey of AVC & AABP members (n=125).

Owner Compensation	Year Established	P < 0.01
	Use of a Marketing Plan	P < 0.01
	Number of Annual Vacation Days per Veterinarian	P = 0.01
New Associate Compensation	Number of Administrative Personnel	P < 0.01
	Use of a Marketing Plan	P = 0.02
	Frequency of an All Staff Meeting	P < 0.01
	Number of Annual Vacation Days per Veterinarian	P < 0.01
	Number of Administrative Personnel Hired in the Past 5 Years	P < 0.01
Ten-Year Associate Compensation	Number of Administrative Personnel	P < 0.01
	Frequency of an All-Veterinarian Meeting	P = 0.01
	Frequency of an All-Staff Meeting	P < 0.01
	Average Hours per Week per Veterinarian	P < 0.01
	Number of Administrative Personnel Hired in the Past 5 Years	P < 0.01
	Number of Administrative Personnel that Left in the Past 5 Years	

Chapter 3 - Perceptions of gender bias in bovine practice in the U.S. in 2018

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Acknowledgements: We would like to acknowledge David Smith at Mississippi State University for early discussions about survey development and analysis of results. We also acknowledge Dr Fred Gingrich and Steve Johnson for their assistance as well as the veterinarians who participated in the pilot survey.

Abstract

A survey regarding perceptions related to gender bias encountered in clinical practice settings was made available to the members of the American Association of Bovine Practitioners. Survey responses about those experiencing client or employer- generated gender bias in their current practice, and in the first year of practice, were categorized to binomial (yes/no) from ordinal responses (0-10 scales). Women graduating before 1990 were more likely to observe current client gender bias than those graduating in 2011-2017. Men were more similar throughout with those graduating before 1990 seeing slightly less current client gender bias than

those graduating in 2011-2017. Graduation year tended to increase the risk of client gender bias over time, with those graduating before 1990 experiencing less client gender bias in the first year of practice than those graduating in 2011-2017. Women tended to see more client gender bias in the first year of practice compared to men. There were no significant associations to employer gender bias in their current practice, but employer gender bias in the first year of practice was found to be significantly associated with gender. Men were roughly half as likely to observe employer gender bias in the first year of practice compared to women. Gender and graduation year were significantly associated with client and employer gender bias encountered in the current practice and in the first year of practice. The results support the conclusion that gender bias is encountered by our veterinary colleagues, with more bias perceived by more recently graduated women.

Keywords: gender bias, veterinary practices, recent graduates

Introduction

Discussions focusing on gender bias and factors that impact gender bias are a primary focus for many industries, including veterinary medicine. With a dramatic increase in the percentage of women attending veterinary college, research regarding potential gender bias is necessary. The Association of American Veterinary Medical Colleges reported approximately 80% of students in US colleges of veterinary medicine for 2020 are female.¹⁹ As the percentage of women in the veterinary industry continues to climb, gender bias remains an important issue.

Despite information in other fields, practice in bovine medicine has relatively little published research on current perceptions of gender bias and potential methods to help solve these issues. The Gender Roles and Equality in Agribusiness report noted 61% of the women

respondents had experienced sexism or discrimination because of their gender.²⁰ The report acknowledged most respondents felt careers in agribusiness offered more positive attitudes toward women and gender equality than other industries.²⁰

The veterinary profession is growing at a much faster rate than the US average for all occupations. The U.S. Bureau of Labor Statistics predicted a 16% increase in employment numbers from 2019-2029, which would be an increase of 14,200 jobs.²¹ As the number of job opportunities and students graduating both increase, the number of job applications and interviews will increase along with it. Determining potential gender bias associated with the application and interview process will be crucial to help maintain gender equality in the veterinary profession.

Understanding the reasons for gender bias in all aspects of veterinary medicine is necessary for the wellbeing of the industry, especially as the workplace becomes more female dominated. Unfortunately, there is little research currently available on gender bias in bovine or mixed animal practice from clients, employers, and personnel during the hiring process. Therefore, this study focused on elucidating the perceptions of gender bias and the factors that influence gender bias in the bovine veterinary practice.

Materials and Methods

For the survey, the working definition of gender bias was “when a member of one gender is advantaged or disadvantaged for the reason of their gender.” Survey questions were designed to capture perceptions about personal experiences in job seeking, hiring, and working as an associate or owner. The survey was piloted on a convenience sample of bovine practitioners and was then made available through member log-in to the AABP website in 2018, and participant

identifiers were stripped from the data prior to analysis to maintain anonymity. The survey was deemed exempt from review by the Institutional Review Board at Kansas State University. Questionnaire responses were reviewed for completeness and outcome variables assessed for transformation for the purpose of statistical analysis; incomplete responses were removed from the dataset for modeling.

Survey responses about the perceived presence of gender bias from current clients, clients in the first year of practice, current employers, and employers in the first year were categorized to binomial (yes/no, with no=0 and yes=1-10) from ordinal responses (0-10 scales) for use in model prediction. The binomial outcomes were derived from survey responses of zero as no gender bias and those marking any other response as experiencing gender bias; the model then predicted a probability of experiencing any level of gender bias for each of the survey response factors listed in Table 3.1.

Additional continuous outcomes of interest included: number of applications submitted for the first position, number of interviews received for the first position, and a ratio of interviews to applications. Survey response factors (Table 3.1) were categorized and evaluated for potential association with each outcome. A complete list of survey questions is available in from the authors.

Univariate generalized linear models were created for each potential factor and outcome of interest, and a final multivariable model was created using factors identified as associated with the outcome variables with a significance level of $P < 0.10$. The final models were generated through an iterative process to include only factors associated with each outcome at $P < 0.05$. Both Akaike Information Criterion and Bayesian Information Criterion were applied in the model selection process. Statistical results are listed as mean \pm standard error.

Results

A total of 207 survey respondents provided responses for the various factors being evaluated in the model, including 99 women and 108 men. The population was closely split between those graduating in 2000 or before (48.3%) and those graduating in 2001 or after (51.7%). Over half of the population (61.3%) reported coming from a location within 30 miles of a community size of 50,000 or less pre-college, and slightly more (68.1%) reported moving to a location within 30 miles of communities of 50,000 or less following graduation. Nearly all of the respondents (90.4%) noted working with mostly bovines in their practices and a similar percentage (81.2%) reported having a food animal background prior to attending veterinary school.

The perception of gender bias from current clients was categorized into no bias and bias; 31.9% of respondents were placed into the no bias category. A distribution of the ordinal data can be found in Figure 3.1. The binomial variable of perceived bias from current clients was used as outcome in the analysis and was significantly associated with graduation year and was modified by gender (Figure 3.2). Women showed a significant increase in likelihood of observing gender bias from current clients based on graduation year: before 1990 (0.33 ± 0.14) as compared to 2011-2017 (0.95 ± 0.03). Men also saw an increase in the likelihood to observe gender bias from current clients from before 1990 (0.45 ± 0.07) to 2001-2010 (0.87 ± 0.09), but then experienced a decline in 2011-2017 (0.68 ± 0.11). It is important to note that respondents were asked to identify whether they perceived the presence of gender bias, and not if they had personally experienced gender bias.

The perception of gender bias from clients in the first year of practice was also categorized into bias and no bias; 27.5% of respondents were placed into the no bias perceived

category. A breakdown of the ordinal data can be found in Figure 3.3. Regarding the perception of gender bias from clients in the first year of practice, graduation year and gender were both significantly associated, but no significant interaction was identified between the two variables. Graduation year tended to increase the risk of gender bias in the first year of practice over time, with those graduating before 1990 (0.70 ± 0.07) reporting less client gender bias in the first year of practice than those graduating in 2011-2017 (0.87 ± 0.05). Women also indicated noticing more gender bias from clients in the first year of practice (0.95 ± 0.02) compared to men (0.60 ± 0.06).

There were no significant associations between other variables and the perception of gender bias from employers in their current practice. This outcome placed the largest percentage of respondents (60.9%) into the no bias observed category. A summary of the ordinal data can be found in Figure 3.4.

The perceived presence of gender bias from employers in the first year of practice was found to be significantly associated with gender. Men were approximately half as likely (0.31 ± 0.04) to observe gender bias from employers in the first year of practice compared to women (0.65 ± 0.05). Gender bias from employers in the first year of practice was broken into categories of bias and no bias. A summary of the ordinal data can be found in Figure 3.5.

The number of interviews received for survey respondents' first position was significantly associated with graduation year. The first number of interviews tended to increase over time with those graduating before 1990 (2.81 ± 0.36) participating in significantly fewer interviews than those graduating in 2000-2017 (4.31 ± 0.39), except for graduates from 2000-2010 who experienced numerically fewer than all other time frames (2.58 ± 0.45). A summary of responses for the number of interviews in the first year is presented in Figure 3.6.

The number of applications submitted for the first position was associated with graduation year, gender, and being the first of your gender at the practice. The number of applications for survey respondents' first position showed a general decrease over time from those graduating before 1990 (3.72 ± 0.85) to those graduating in 2000-2010 (1.52 ± 1.26). The most recent graduates in 2000-2017 (5.36 ± 1.17) noted the most applications for their first position. In regards to gender, women (8.54 ± 1.34) submitted significantly more applications than men (3.73 ± 0.85) when applying for the first position. A summary of responses for the number of applications for survey respondents' first position can be found in Figure 3.7.

The ratio of interviews to applications for survey respondents' first position was significantly associated with gender. There was a significant difference in the ratio of interview to applications when looking at men and women. The ratio was higher for men (1.01 ± 0.05) than for women (0.70 ± 0.06). A breakdown of the number of interviews to applications in one's first position can be found in Figure 8. A list all the outcomes and significant associations can be found in Table 3.2.

Discussion

As the number of female veterinarians continues to climb, the veterinary profession must continue to evolve. Potential reasons for the shift in gender have been hypothesized; explanations include decreased gender bias during admission to colleges, new treatment practices for large animals, and women demonstrating success in the field.¹² While these factors could be potential reasons for the increase in women in the industry, they do not describe potential gender bias that may exist.

This study suggests that gender bias occurs in the profession, with more gender bias being experienced by recent, women graduates. Additionally, there is more gender bias being perceived from clients than employers. In regards to bias being experienced from clients and employers, gender and graduation year were important factors. McKinsey & Company's report on Women in the Workplace 2019 indicated younger generations in general will experience more bias simply due to being seen as inexperienced.²² This coincides with our findings illustrating recent graduates were more likely to encounter bias compared to older graduates; although, this effect was modified by gender with recent graduate females more likely to report bias compared to males. In the older graduates with more experience in the profession, the reports of current client bias was not different between males and females.

The increase in veterinary college graduates and above average growth rate of the profession will drive the importance placed on applications and interviews with looking for an employee. This study showed factors of gender and graduation year influenced the number of applications and interviews received. A 2013 study of graduates of US veterinary medical colleges indicated both men and women were most often receiving one employment offer following graduation (52.6% and 63.6%, respectively), but men noted receiving 4 or more offers at a higher rate than women (11.3% and 4.6%, respectively).²³

The wording of the survey questions regarding gender bias do not permit us to say with certainty whether the bias was against or toward either gender. Additionally, a larger study including more specific questions regarding gender bias may help better identify possible associations.

This study showed that respondents experienced more bias from clients than employers both currently and in their first year of practice. While reports of gender bias are discouraging,

employers did appear to be less likely to show bias compared to clients. Additionally, our data would indicate gender bias is encountered by veterinarians, with more being perceived by recent women graduates. From this study, several future key research areas to the veterinary field can be suggested. First, further investigate the actual rate at which bias is happening. Second, consider effective approaches to countering bias. Third, enhance the public stance of the profession on gender bias, sexual harassment, and discrimination.

Figures

Figure 3.1: AABP members were surveyed to determine the perceived presence of gender bias from their current clients. Results are displayed on a scale of 0-10 with 0 being no gender bias perceived and ten indicating constant, persistent gender bias.

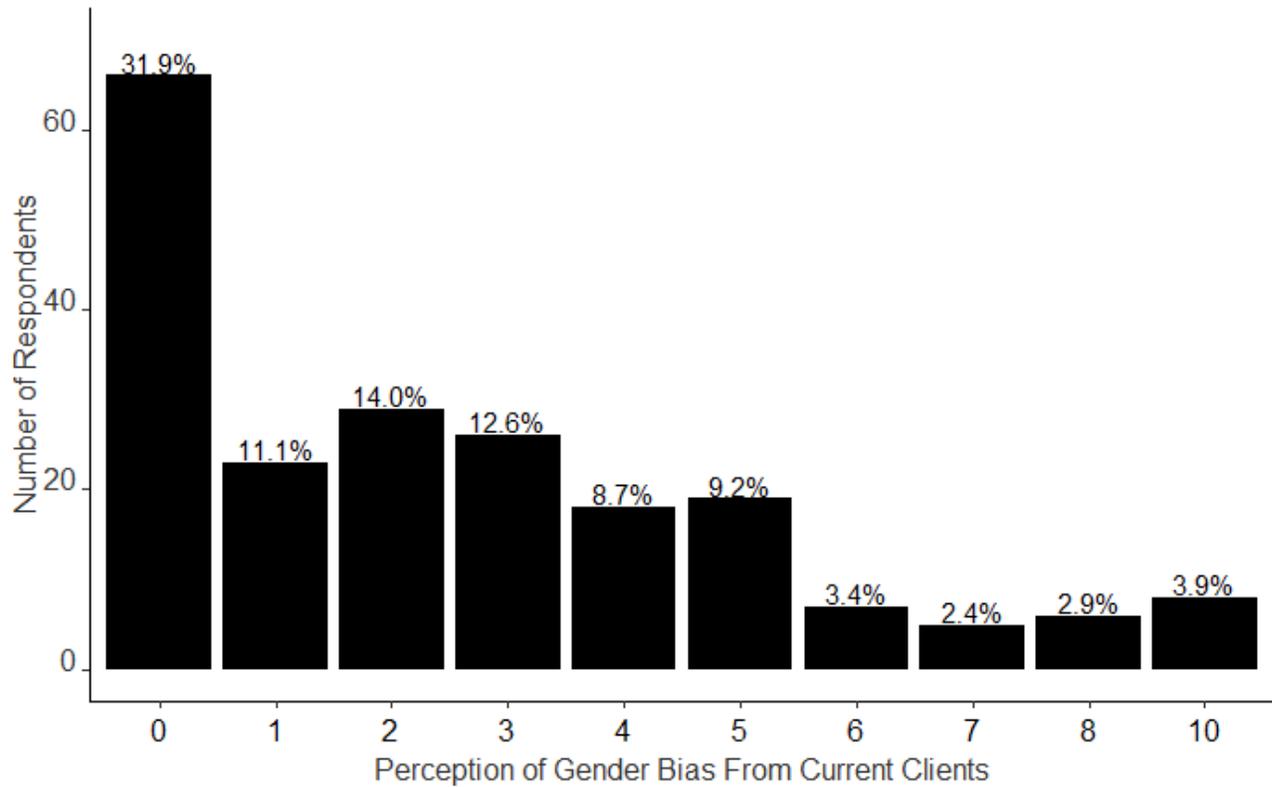


Figure 3.2: AABP members were surveyed to determine the perceived presence of gender bias from their clients in the first year of practice. This outcome was significantly associated with the interaction between graduation year and gender.

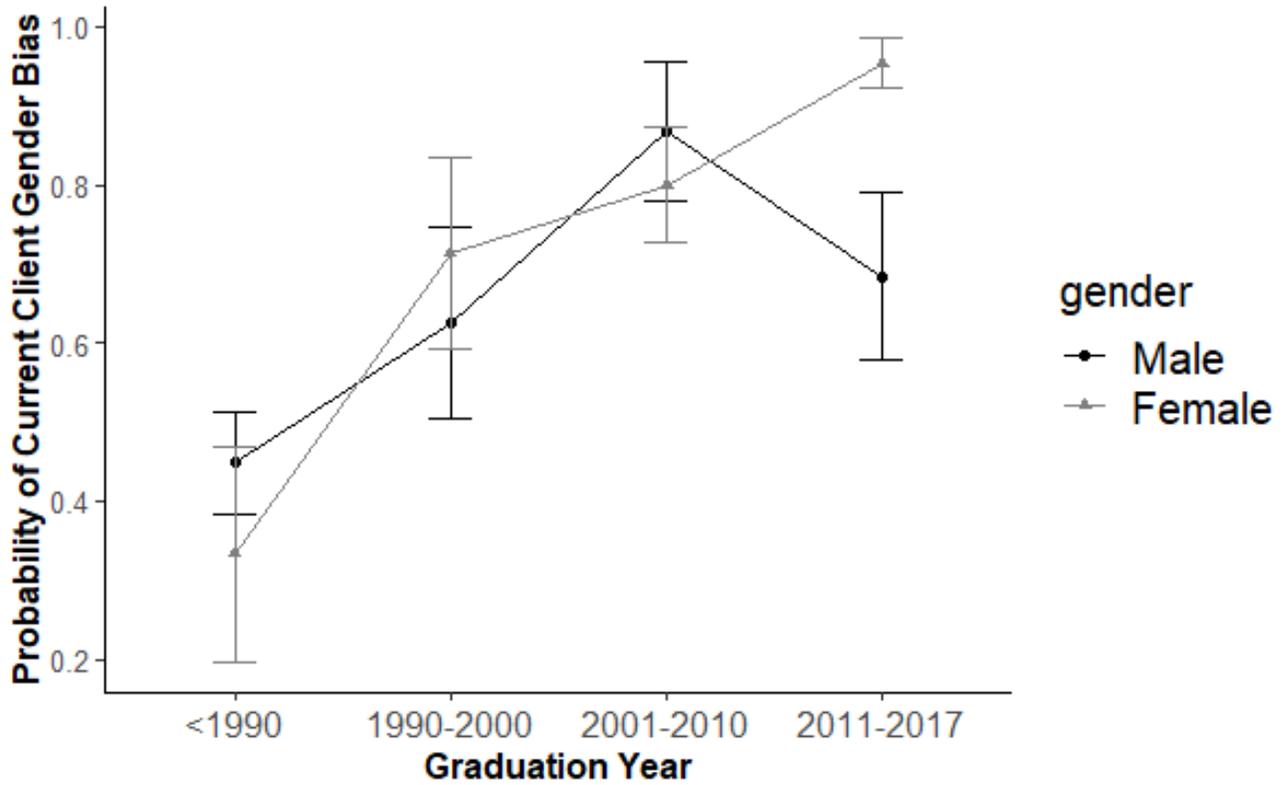


Figure 3.3: AABP members were surveyed to determine the perceived presence of gender bias from their clients in the first year of practice. Results are displayed on a scale of 0-10 with 0 being no gender bias perceived and ten indicating constant, persistent gender bias.

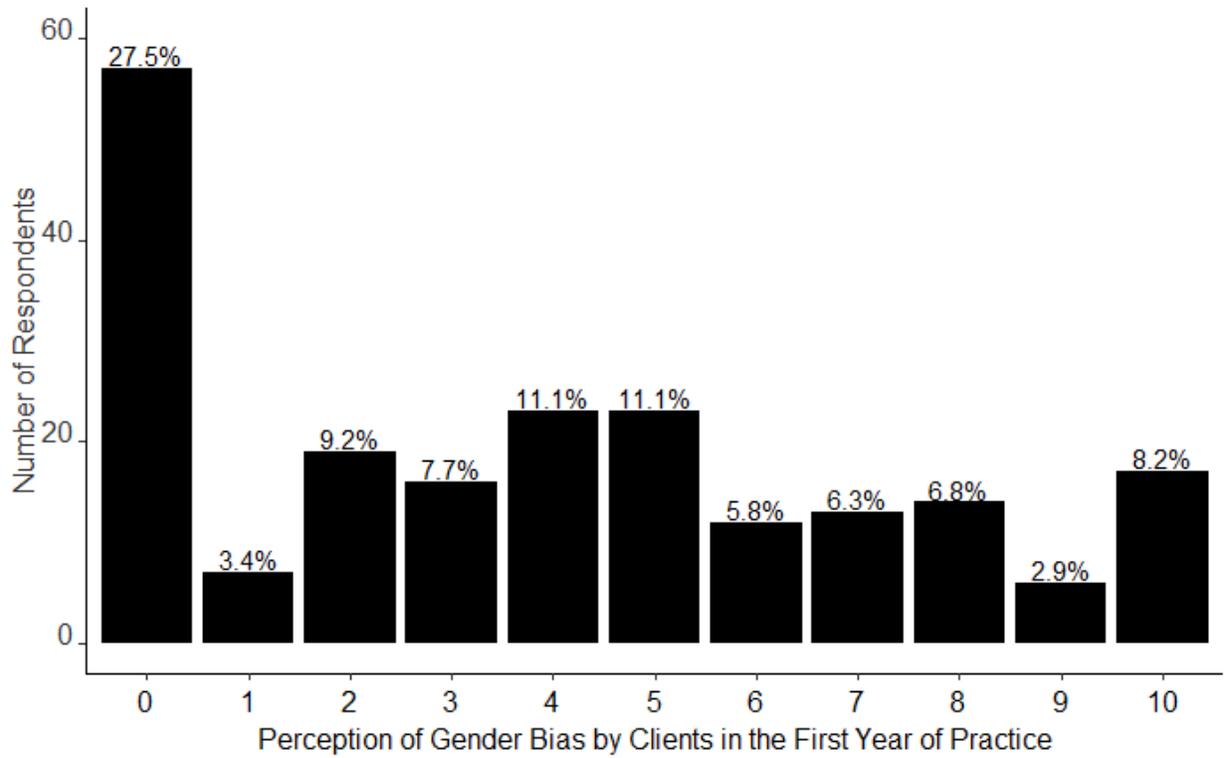


Figure 3.4: AABP members were surveyed to determine the perceived presence of gender bias from their current employers. Results are displayed on a scale of 0-10 with 0 being no gender bias perceived and ten indicating constant, persistent gender bias.

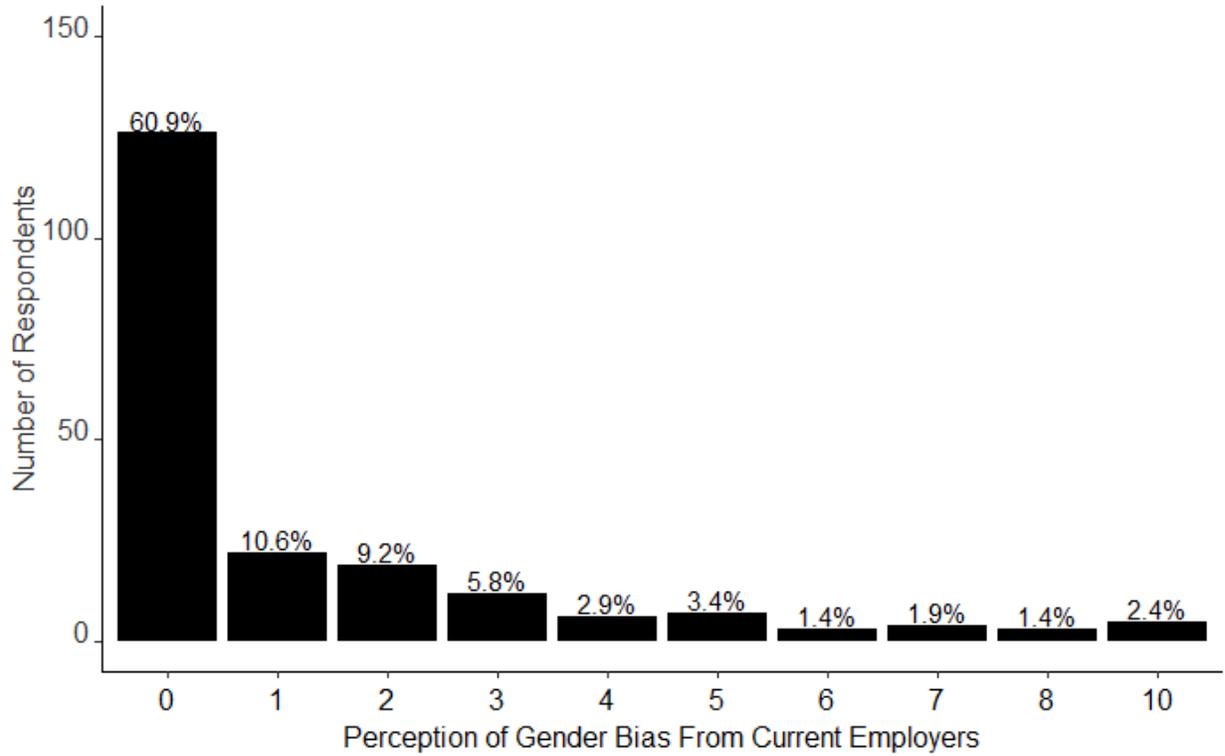


Figure 3.5: AABP members were surveyed to determine the perceived presence of gender bias from their employers in the first year of practice. Results are displayed on a scale of 0-10 with 0 being no gender bias perceived and ten indicating constant, persistent gender bias.

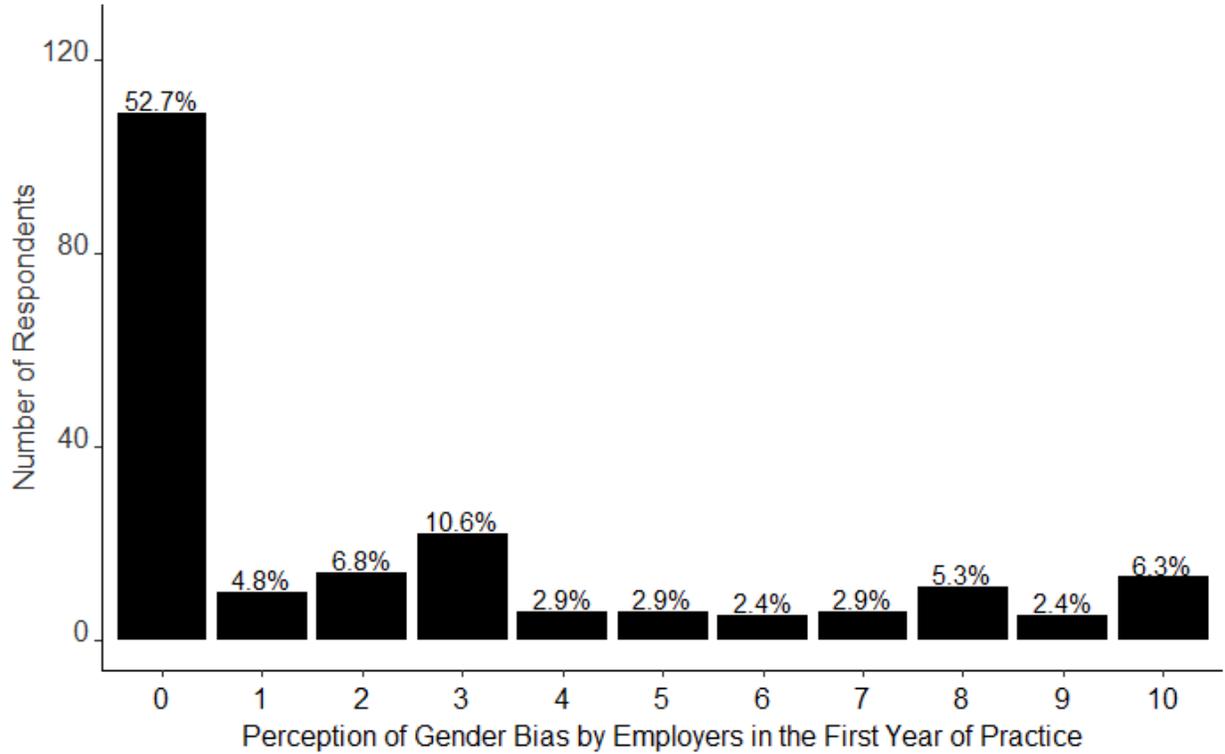


Figure 3.6: AABP members were surveyed to determine the number of applications submitted during the application/hiring process when obtaining one's first position.

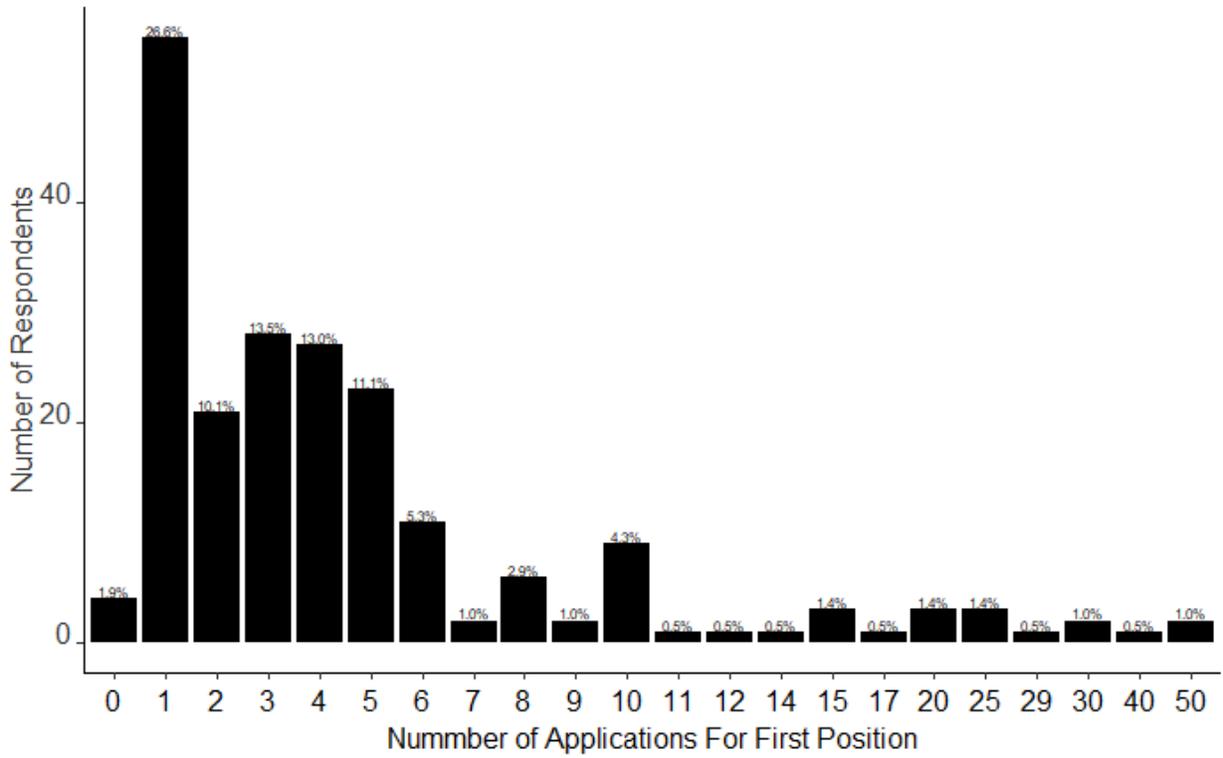


Figure 3.7: AABP members were surveyed to determine the number of interviews received during the application/hiring process when obtaining one’s first position.

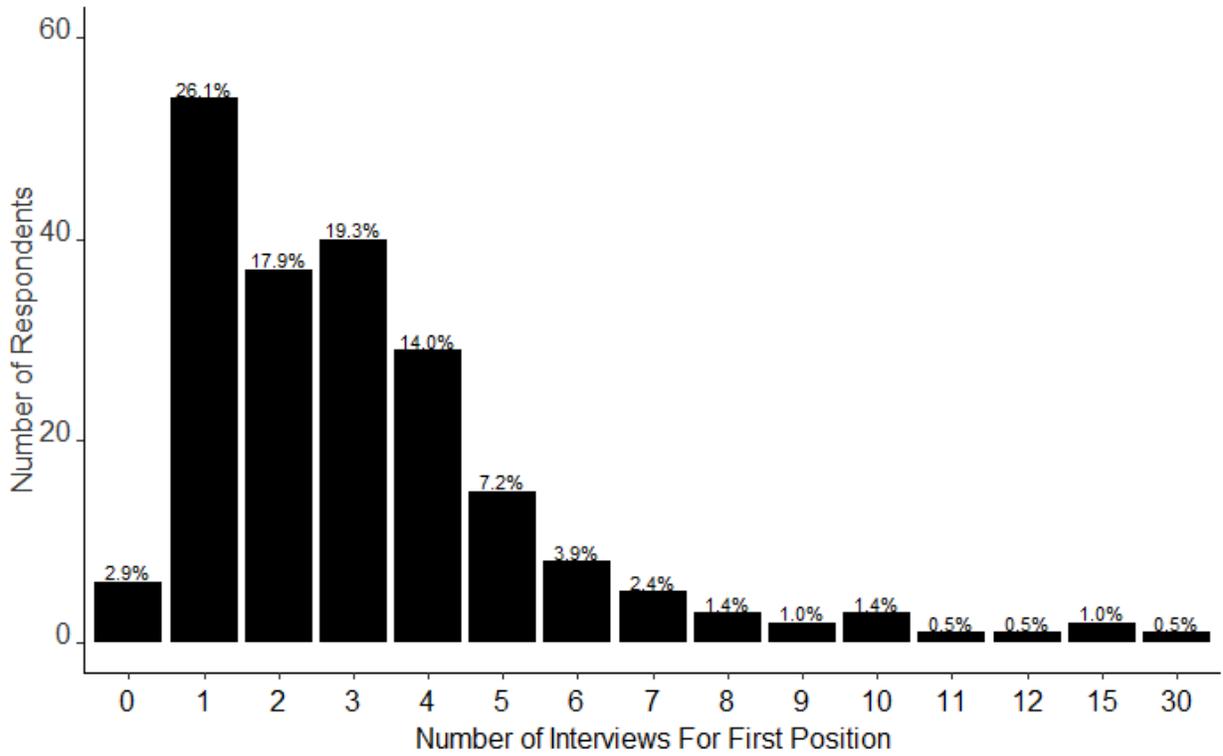
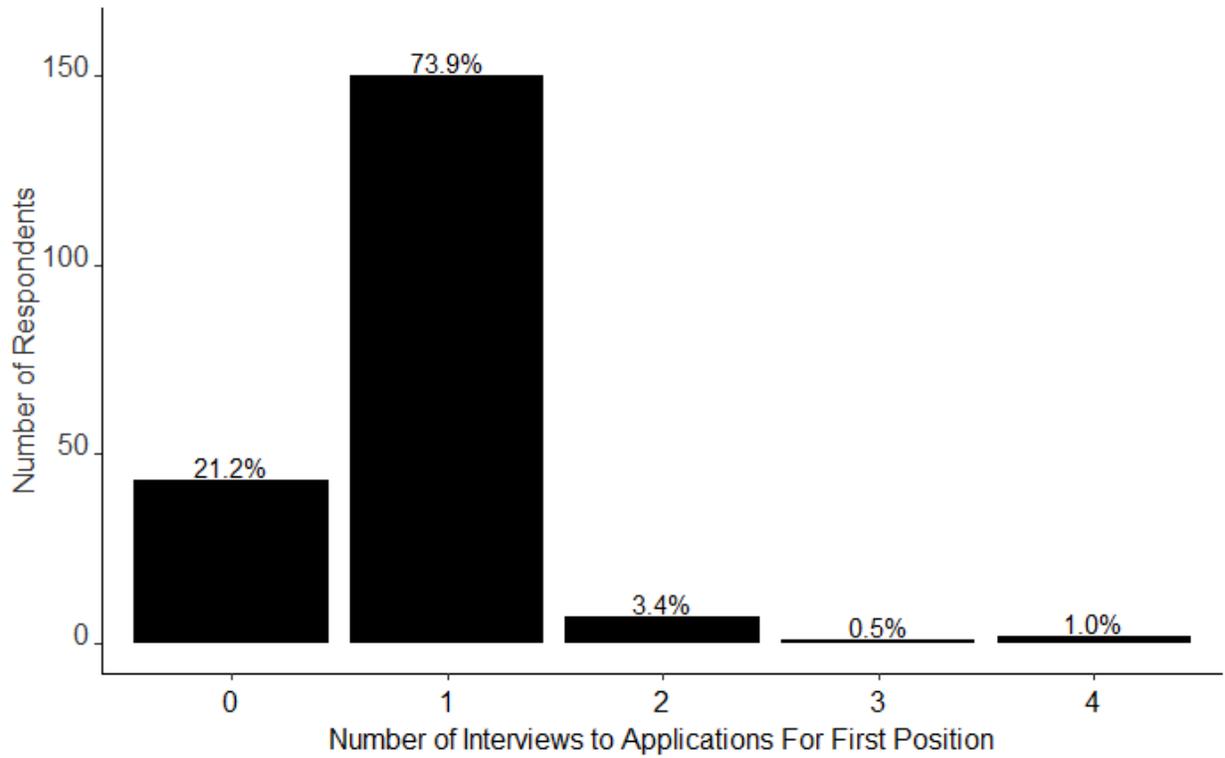


Figure 3.8: AABP members were surveyed to determine the number of applications submitted and interviews received during the application/hiring process when obtaining one's first position. A ratio of interviews to applications was when calculated.



Tables

Table 3.1: AABP members were survey to determine effects of gender bias from clients and employers, as well as the number of applications submitted and interviews received when obtaining one’s first position. A model was created for each of the outcomes and the following factors were included to determine statistical significance.

Factors	Type of Data	Model Variable
Gender	Binomial	Male/Female
Graduation Year	Categorical	<1990, 1990-2000, 2001-2010, 2011-2017
Pre-College Size	Categorical	<1,000-5,000, 5,001-50,000, >50,000
Post-College Size	Categorical	<1,000-5,000, 5,001-50,000, >50,000
Food Animal Background	Binomial	Yes/No
Practice Activities	Categorical	Exclusively Beef/Dairy; Mixed Practice, mostly beef/dairy, Mixed Practice, no beef/dairy
First Gender at the Practice	Binomial:	Yes/No

Table 3.2: AABP members were surveyed to determine effects of gender bias from clients and employers, as well as the number of applications submitted and interviews received when obtaining one's first position. A summary of model significant factors and their P-values are also listed.

Outcomes of Interest	Significant Factors	P-Value
Perceived Presence of Gender Bias from Current Clients	Graduation Year * Gender	0.04
Perceived Presence of Gender Bias from Clients in the First Year of Practice	Graduation Year	0.04
	Gender	<0.01
Perceived Presence of Gender Bias from Current Employers	No Significant Factors	
Perceived Presence of Gender Bias from Employers in the First Year of Practice	Gender	<0.01
Number of Interviews Received for First Position	Graduation Year	0.01
Number of Applications Submitted for First Position	Graduation Year	0.03
	Gender	<0.01
	First of Your Gender at the Practice	0.02
Number of Interviews to Applications for First Position	Gender	<0.01

Conclusions

The way a practice is managed can influence many aspects relating to employees, finances, and overall wellbeing of the practice itself. Providing recognition to employees can increase job and career satisfaction among recent veterinary graduates. Realizing the potential debt a young veterinarian has can provide guidance and encouragement and can also benefit financial, physical, and emotional health. Using business management strategies such as offering retirement plans, utilizing asset protection plans, and keeping track of employee longevity can benefit the amount of turnover a practice sees and the compensation packages they are able to provide associates and owners. Additionally, recognizing that gender bias can be present and working to correct any inequality in the field is beneficial for the veterinary industry as a whole.

Wellbeing of veterinary personnel is important to long-term success of rural veterinary practices. Providing information to professionals in the industry can be beneficial for many reasons, including increased satisfaction and health of employees. Receiving adequate recognition is an important quality that has been found to drive both job and career satisfaction. Being able to deliver positive feedback and show appreciation in the workplace can also play an important role when looking at financial, physical, and emotional health. Additionally, understanding the level of debt associated with veterinary school is important for employers to acknowledge for the overall health of their employees. Giving adequate recognition and financial guidance in the workplace is critical not only for the practice and employees wellbeing, but also for the clients and patients that these individuals work with.

Business management strategies should be used in all businesses, but veterinary practices that are potentially facing workforce shortages should place an increased emphasis in this area. Using various business management factors in the practice can potentially help decrease

personnel turnover and increase compensation packages for veterinarians and practice owners. Business strategies such as offering retirement plans, utilizing asset protection plans, and understating reasons for employee turnover are several recommended areas of improvement for rural practices.

Veterinary medical colleges are now graduating more females than males, and recognizing potential limitations for females in rural practice is an important area of research. Gender bias is being perceived at a higher rate from clients than employees, with females and recent graduates experiencing the most bias. Additionally, females seem to be experiencing gender bias while searching for jobs, including during the application and interview process. Realizing that gender bias can be an issue in veterinary medicine is the first step to creating gender equality in the profession and improving the overall attitude of the industry.

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Appendix A - Supplementary Material

Survey Question	Original Variable	Model Variable
How many licensed veterinarians are in your practice?	Continuous	1, 2, 3, 4-5, ≥ 6
How many veterinary technicians are in your practice? (registered, non-registered, veterinary nurses, veterinary assistants)	Continuous	0, 1-2, 3, 4, ≥ 5
How many administrative personnel and non-staff are in your practice?	Continuous	0, 1, 2, 3, ≥ 4
Of the DVMs in your practice, how many of them have ownership in the practice?	Continuous	0-1, 2, ≥ 3
What year was your practice established?	Continuous	<1950, 1950-1970, 1971-2010, ≥ 2011
In what state is your practice located?	All states listed	AABP districts
What is the size of the community where your practice is located	<5,000, 5,000-9,999, 10,000-35,000, >35,000	<5,000, 5,000-9,999, 10,000-35,000, >35,000
What is the species focus of your practice?	Predominately large animal, Mixed – mostly large animal, Mixed – mostly small animal	Predominately large animal, Mixed – mostly large animal, Mixed – mostly small animal
What is the frequency for updating service and product sales prices in your practice?	Semiannually, Annually, Every 2 Years, Every 5 Years	Semiannually, Annually, Every 2 Years, Every 5 Years
Does your practice use a business plan?	Yes/No	Yes/No
Does your practice use a marketing plan?	Yes/No	Yes/No

Does your practice use a growth strategy?	Yes/No	Yes/No
Does your practice use tools for business analysis? (AVMA business, AABP vet practice sustainability committee, etc)	Yes/No	Yes/No
What is the total compensation package for a new veterinary associate in your practice? (salary plus value of benefits)	\$5,000 increments from <40,000 to ≥250,000	<\$55,000, \$55,000-\$64,999, \$65,000-\$74,999, \$75,000-\$84,999, ≥\$85,000
What is the total compensation package for a ten-year veterinary associate in your practice? (salary plus value of benefits)	\$5,000 increments from <40,000 to ≥250,000	<\$84,999, \$85,000-\$94,999, \$95,000-\$104,999, \$105,000-\$114,999, ≥\$115,000
What is the total compensation package for an owner in your practice? (salary plus value of benefits)	\$5,000 increments from <40,000 to ≥250,000	<\$99,999, \$100,000-\$124,999, \$125,000-\$149,999, \$150,000-\$179,999, ≥\$180,000
Does your practice offer a retirement plan for veterinary associates?	Yes/No	Yes/No
Does your practice offer a retirement plan for all employees?	Yes/No	Yes/No
Does your practice provide health insurance to all employees?	Yes/No	Yes/No
Does your practice provide health insurance to veterinary associates?	Yes/No	Yes/No
Does your practice provide a continuing education allowance?	Yes/No	Yes/No
If yes, how much does your practice provide in CE allowance for	Continuous	Not used in models

veterinarians in your practice? (one value, not a range)		
Does your practice provide maternity benefits?	Yes/No	Yes/No
Does your practice have an asset protection plan through business or corporate structuring? (eg, LLC, Inc)	Yes/No	Yes/No
Does your practice have a person who spends the majority of their time on practice management?	Yes/No	Yes/No
How often does your practice have a meeting with all the veterinarians in your practice?	Daily, Weekly, Monthly, Annually, Never	Daily, Weekly, Monthly, Annually, Never
How often does your practice have a meeting with the entire practice staff?	Daily, Weekly, Monthly, Annually, Never	Daily, Weekly, Monthly, Annually, Never
How many annual vacation days do veterinary associates in your practice receive?	0, 1-7, 8-14, 15-20, 21-27, ≥ 28	0, 1-7, 8-14, 15-20, 21-27, ≥ 28
On average, how many hours does a veterinary associate work per week in your practice? (one value, not a range)	Continuous	<45, 45-48, 50-52, 55-60, ≥ 65
In the last five years, how many veterinary associates have been hired in your practice?	Continuous	0, 1, 2, 3, ≥ 4
In the last five years, how many veterinary associates have left your practice?	Continuous	0, 1, 2, 3, ≥ 4

In the last five years, how many staff members have been hired in your practice?	Continuous	0, 1-2, 3, 4-5, ≥ 6
In the last five years, how many staff members have left your practice?	Continuous	0, 1, 2, 3, ≥ 4
How often is your practice website updated?	Semiannually, Annually, Every 2 Years, Every 5 Years, Don't Maintain a Website	Semiannually, Annually, Every 2 Years, Every 5 Years, Don't Maintain a Website
Does your practice use social media to communicate?	Yes/No	Yes/No
Where do you see the biggest opportunity for economic growth in your practice?	Expanding Services, Growing Clientele, Growing/Retaining Personnel, Improving Business/Financial Management, Improving Inventory Management, Increasing Fees, Other	Expanding Services, Growing Clientele, Growing/Retaining Personnel, Improving Business/Financial Management, Improving Inventory Management, Increasing Fees, Other