

# Executive summary of the Merck Animal Health Veterinarian Wellbeing Study II

**John O. Volk** BS

**Ulrich Schimmack** PhD

**Elizabeth B. Strand** PhD, LCSW

**Judson Vasconcelos** DVM, PhD

**Colin W. Siren** BA

From Brakke Consulting, Greensboro, NC 27408 (Volk); Department of Psychology, University of Toronto, Mississauga, ON L5L 1C6, Canada (Schimmack); College of Social Work and College of Veterinary Medicine, University of Tennessee, Knoxville, TN 37996 (Strand); Merck Animal Health, Desoto, KS 66018 (Vasconcelos); and Kynetec, Guelph, ON N1H 2G6, Canada (Siren).

Address correspondence to Mr. Volk (john@volkonline.com).

This article has not undergone peer review. Opinions expressed are not necessarily those of the AVMA.

In the first broad-based study of mental health and wellbeing in the veterinary profession, the Merck Animal Health Veterinarian Wellbeing Study,<sup>1</sup> conducted in 2017, revealed that the prevalence of serious psychological distress among working US veterinarians was consistent with the prevalence in the general US population of employed adults. This study also showed that, on average, the wellbeing of these veterinarians was slightly lower than in the general population, although older ( $\geq 55$  years old) veterinarians enjoyed higher levels of wellbeing than their non-veterinarian counterparts. A high percentage (88%) of respondents with serious psychological distress self-reported experiencing burnout. Although these insights were important for understanding the mental health and wellbeing of veterinarians, questions remained about factors underlying burnout, as well as job satisfaction, including the potential impact of employment compensation method (ie, production based, salary, or a combination of the 2) on job satisfaction.

A new study was subsequently undertaken not only to compare mental health and wellbeing among US veterinarians against previous findings, but also to more closely examine several related issues, including burnout, substance use disorder, suicide ideation and attempts, job satisfaction, and cyberbullying. This research was again conducted by Brakke Consulting in collaboration with the AVMA. Staff at Brakke Consulting engaged a team of experts who had advised on the earlier study. Merck Animal Health, a supplier of pharmaceuticals and vaccines to the veterinary industry, sponsored the project and participated in its implementation.

The 4 main objectives of this new study—the Merck Animal Health Veterinarian Wellbeing Study II—were to monitor the wellbeing and mental health

of US veterinarians, compare key findings against those for physicians and employed adults in the US general population where appropriate, examine several health and wellbeing issues in more depth, and evaluate potential techniques to improve mental health and wellbeing.

## Methods

### Survey

A survey of practicing and nonpracticing veterinarians was conducted. A questionnaire was developed and pretested with veterinarians to gather feedback on content, terminology, and understanding. After refinement, the questionnaire and research protocol were submitted to the Advarra Institutional Review Board, Columbus, Md, for review and received a letter of exemption.

The AVMA provided a random sample of 20,000 email addresses from its database of working US veterinarians. An email signed by Dr. John Howe, AVMA president, and Dr. Janet Donlin, AVMA executive vice president and CEO, was sent to these email addresses on September 23, 2019, alerting recipients to the upcoming survey and encouraging them to participate.

Subsequently, Kynetec, a market research firm, sent an email to all 20,000 email addresses with an invitation to participate and a link to the online survey. Up to 3 reminders were sent to nonresponders over a 3-week period. Respondents were given the opportunity to opt into a drawing for twenty-five \$100 gift cards and one \$1,000 grand prize as an incentive to participate. The survey closed on October 23, 2019.

Respondents were asked to complete several instruments and questions for measurement of mental health and wellbeing. As in the earlier study, mental health was assessed with the Kessler Psychological Distress Scale,<sup>2</sup> by which respondents assigned a numeric score ranging from 1 (none of the time) to 5 (all of the time) to 10 items to determine the presence or absence of severe psychological distress. Wellbe-

## ABBREVIATIONS

MAH Merck Animal Health  
NSDUH National Survey on Drug Use and Health

ing, or the way individuals feel about their lives, compared with the best or worst possible lives they can imagine, was evaluated with an index based on 3 questions widely used to measure wellbeing<sup>3,4</sup> and scored on a scale from 1 to 10. Respondents were subsequently categorized as flourishing (scores of 7 to 10), getting by (scores of 4 to 6), or suffering (scores of 0 to 3). To measure burnout more precisely than in the original 2017 study, the Mayo Clinic Physician Burnout and Wellbeing Scale<sup>5</sup> was used, as developed by physicians at Mayo Clinic in Rochester, Minn.<sup>6</sup> Respondents were asked to answer yes or no to 7 questions, with the number of “yes” answers indicating their level of burnout.

In the 2017 study, self-reported use of alcohol and recreational drugs was relatively low. In the 2019 study, more precise tools similar to those used in the NSDUH<sup>7</sup> were used to measure substance use. Responses regarding substance abuse and suicide ideation, planning, and attempts were compared with those of employed adults ( $\geq 25$  years old) in the US general population by use of data from the NSDUH,<sup>7</sup> which is conducted annually among 70,000 US adults on behalf of the NIH and also measures suicide ideation, planning, and attempts.

To evaluate potential contributors to job satisfaction among veterinarians, the study team devised a scale to rate 14 dimensions of job satisfaction. Respondents were asked to rate their agreement or disagreement with each of these dimensions as follows using a 6-point Likert scale, where 6 represented strongly agree and 1 represented strongly disagree. For analysis purposes, responses were converted to a 10-point scale.

1. Absorption: I am often intensely focused on my work and time goes by quickly.
2. Autonomy: I decide how I structure my work and how the work gets done.
3. Contribution: My work makes a positive contribution to other people's lives.
4. Coworkers: I have a warm, friendly, and supportive relationship with my coworkers.
5. Enjoyment: I am enjoying the work that I do.
6. Flexibility: I have flexible work hours and can determine the amount of work I do.
7. Fair pay: I think that I am paid fairly and adequately for my work.
8. Invested: I am invested in my work and take pride in doing a good job.
9. Invigorated: I feel invigorated after working with clients.
10. Learning: I often learn something new at work.
11. Negative climate: A coworker or supervisor is creating a negative work environment.
12. Position/promotion: I am satisfied with my position and promotion opportunities.
13. Supervisor: My supervisor treats me with respect and values my work.
14. Work-life balance: I have a good balance between my work life and my personal life.

## Statistical analysis

Multiple regression analysis was performed to identify which of all surveyed attributes had the strongest associations (ie, largest measures of association) with high levels of wellbeing (ie, with flourishing), serious psychological distress, high burnout scores, and high job satisfaction scores. Values of  $P < 0.05$  were considered significant; most associations had values of  $P < 0.01$ .

## Respondents

During the survey period, nearly 3,000 veterinarians responded to the survey invitation, and a net of 2,874 sets of usable responses was collected, representing 14.4% of all invited veterinarians. Responses were weighted on the basis of age, gender, and region of residence to ensure that respondents were representative of US working veterinarians. The statistical margin of error at the 95% confidence level was within 1.80%.

## Key Insights

Wellbeing of veterinarians as a whole was unchanged from the study conducted 2 years earlier. Although the mental health of respondents as a whole was statistically similar to that found in the earlier study,<sup>1</sup> serious psychological distress was more prevalent among female veterinarians than found in the earlier study (8.1% vs 6.3%). There also was some evidence that veterinarians are developing a more positive attitude toward peers with mental illness.

On average, veterinarians experienced higher rates of burnout than did physicians, despite working substantially fewer hours per week. Suicide ideation and planning were more prevalent among veterinarians than nonveterinarians, and veterinarians were 2.7 times as likely to attempt suicide as were nonveterinarians. Alcohol use, including binge drinking, among veterinarians was consistent with that found in the adult general population. Recreational drug use was uncommon among veterinarians; cannabis use by veterinarians was significantly lower than among nonveterinarians.

Although 70% of veterinarians considered cyberbullying and vicious online reviews a critically important issue facing the profession, reports of cyberbullying or vicious reviews were less common than expected, with approximately 1 in 5 veterinarians reporting having received a vicious online review in the past year. Those who spent less time on social media had less exposure to cyberbullying or vicious reviews.

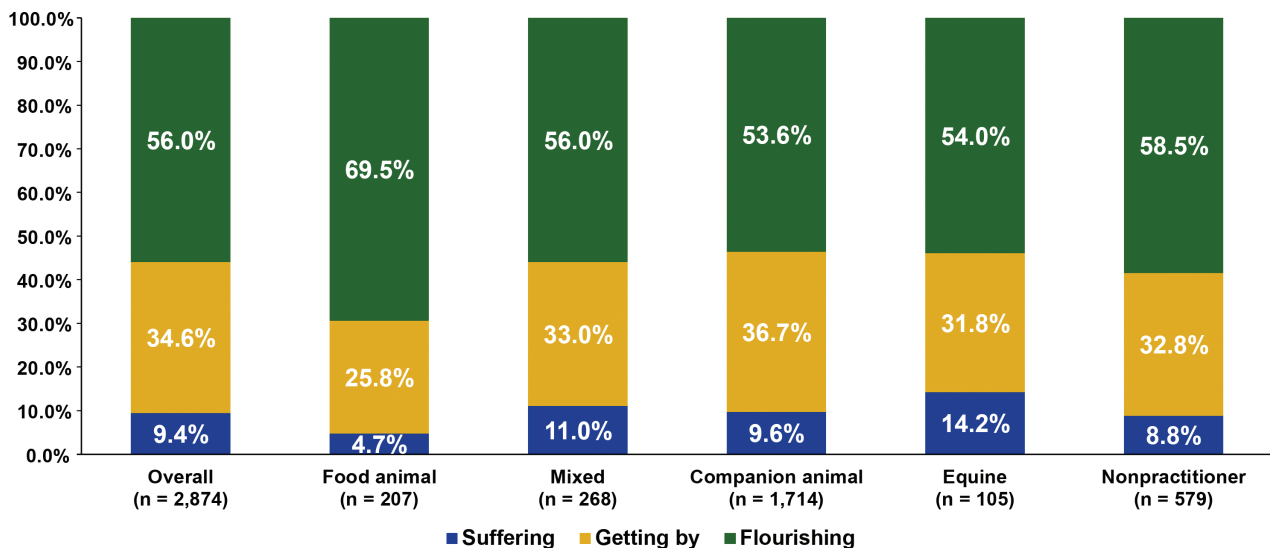
Similar to findings of the 2017 study,<sup>1</sup> slightly more than half (52%) of veterinarians would not recommend the profession to a friend or family member. Financial issues were the major concern—the high cost of becoming a veterinarian combined with low salaries.

## Summary of Findings

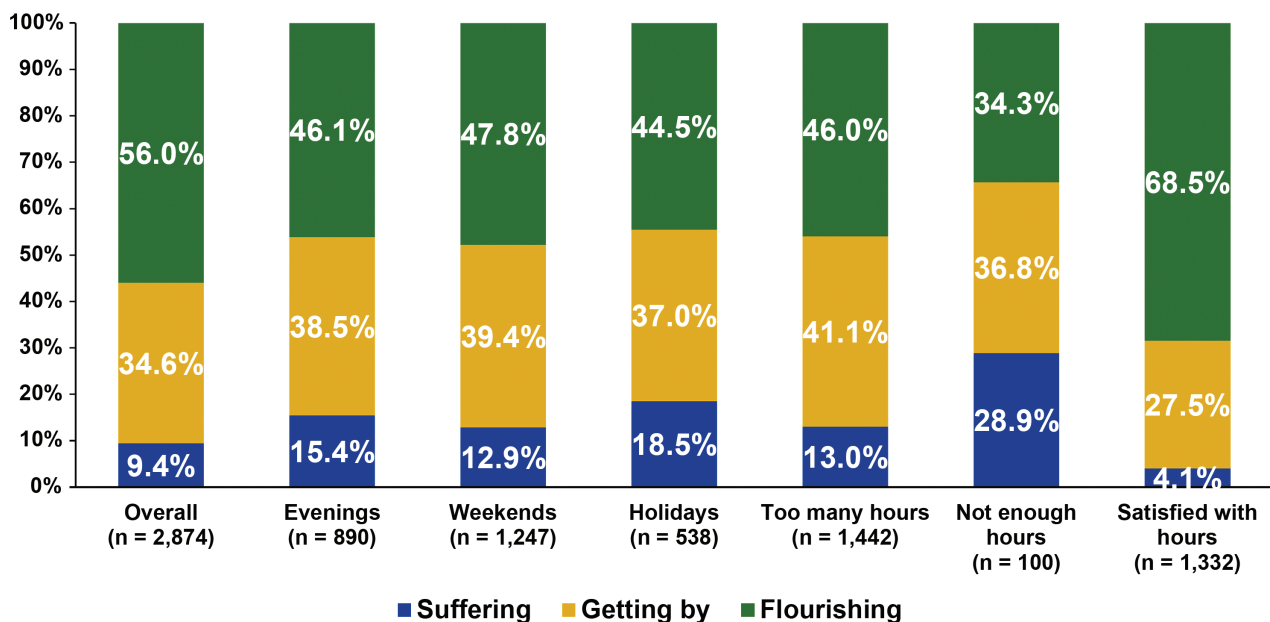
### Wellbeing

As indicated by proportions of veterinarians who were categorized as flourishing, getting by, or suffering, no significant changes in veterinarian wellbeing were evident between 2017 (58.3%, 32.6%, and 9.1%, respectively;  $n = 3,540$ ) and 2019 (56.0%, 34.6%, and 9.4%, respectively; 2,871). As in the 2017 study,<sup>1</sup> younger veterinarians had the lowest level of wellbeing (as assessed by percentages of respondents categorized as flourishing), and older veterinarians had the highest.

Wellbeing was similar across all practice types, except for food animal veterinarians, who on average had higher levels of wellbeing (**Figure 1**). This held true for female food animal veterinarians as well as their male counterparts. Food animal veterinarians also had higher levels of wellbeing than did nonpracticing veterinarians. Also consistent with findings of the 2017 study,<sup>1</sup> compared with the overall percentage of respondents categorized as flourishing, percentages were lower for veterinarians who worked evenings, weekends, and holidays and those dissatisfied with the number of hours worked (**Figure 2**).



**Figure 1**—Percentages of veterinarians who responded to the survey in the 2019 MAH Veterinarian Wellbeing Study II whose wellbeing scores suggested they were suffering (scores of 0 to 3), getting by (scores of 4 to 6), or flourishing (scores of 7 to 10), overall and by practice type.



**Figure 2**—Percentages of the respondents of Figure 1 in the 3 wellbeing categories, overall and by times and number of hours worked. See Figure 1 for remainder of key.

Multiple regression analysis revealed that the attributes having the strongest associations with high levels of wellbeing were enjoying work, having good work-life balance, spending time with family and friends, working in an invigorating work environment, and being satisfied with income. Attributes associated with low wellbeing (ie, suffering) included having a personality high in neuroticism, high levels of student debt, and being younger.

## Mental health

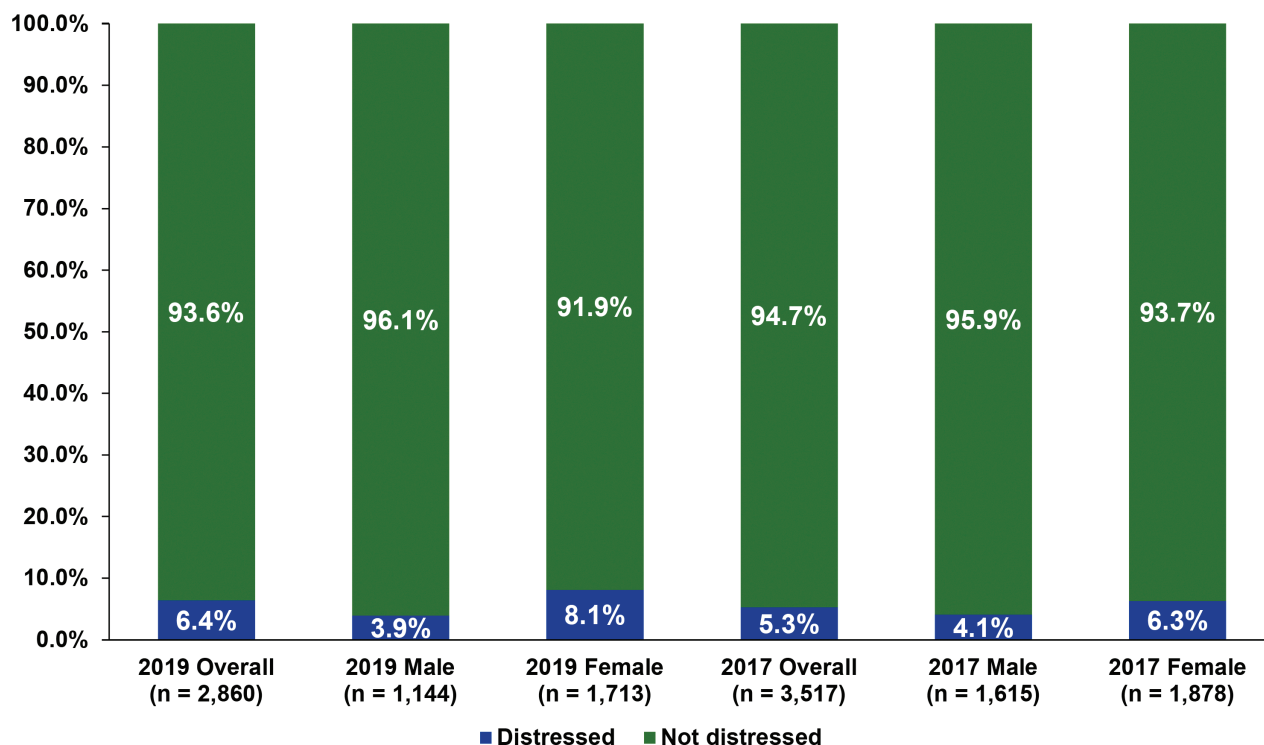
Although the overall prevalence of serious psychological distress among veterinarians did not change significantly between 2017 and 2019, the percentage of female veterinarians with serious psychological distress increased from 6.3% (119/1,889) to 8.0% (138/1,721; **Figure 3**). Again, more young veterinarians had serious psychological distress than did older veterinarians (**Figure 4**). Interestingly, serious psychological distress was nearly nonexistent among both male (0.7% [1/149]) and female (1.7% [1/58]) food animal veterinarians.

Multiple regression analysis revealed that the attributes most strongly associated with serious psychological distress were personalities high in neuroticism and high levels of student debt. Attributes most strongly associated with positive mental health included enjoying work, good work-life balance, spending time with family and friends, being older, having a family, and satisfaction with income.

The gap in mental health treatment observed in 2017 remained in 2019 between those who needed such treatment and those who were receiving it. Of those with serious psychological distress, 51.9% (95/183) did not receive treatment in the past year, 45.9% (84/183) did receive treatment, and 2.2% (4/183) preferred not to answer.

In addition, although veterinary organizations have invested heavily in wellbeing and mental health resources, these resources were lightly used. Only 12.0% (345/2,874) of all respondents, including 15.8% (29/183) of those with serious psychological distress, had accessed any organizational materials. Resources available from AVMA were used most, by 70.4% (243/345) of those who had accessed any organizational materials. Although AVMA resources were among the most highly rated, only 42.8% (104/243) of those using them said they found them useful.

Another obstacle to mental health treatment is awareness or availability of insurance coverage or employee assistance programs. Forty-four percent (1,035/2,369) of respondents reported that their health insurance covered mental health treatment; most (46.7% [1,107/2,369]) of the remainder indicated not knowing whether it did. Employee assistance programs appeared uncommon among respondents' workplaces; only 27.1% (778/2,874) of veterinarians said their employer offered them. Nearly half (47.9% [1,377/2,874]) said such programs were not available. A fourth of respondents (25.1% [720/2,874]) indicated not knowing whether their employers offered them.



**Figure 3**—Percentages of the respondents of Figure 1 (2019) and of the original MAH Veterinary Wellbeing Study<sup>1</sup> (2017) categorized as having serious psychological distress or no such distress.

## Burnout

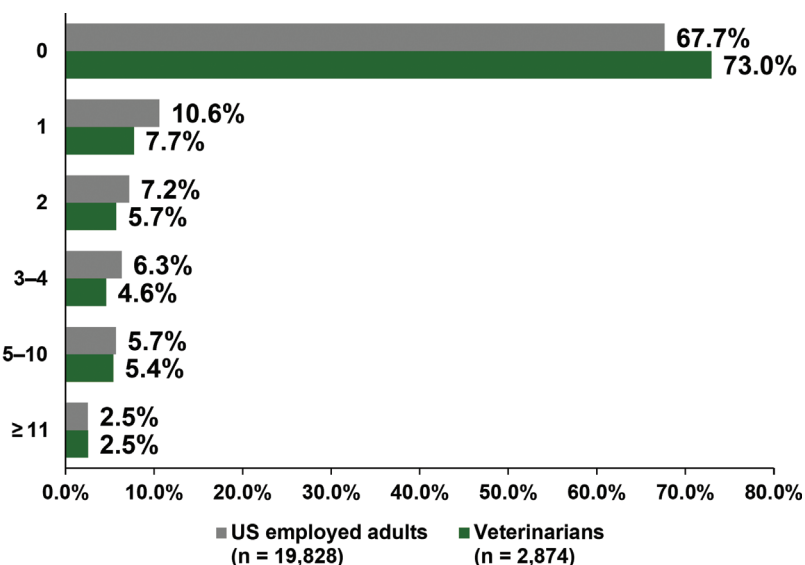
Responses to the 7-point burnout assessment tool<sup>5</sup> for veterinarians in 2019 were compared with those for physicians and employed adults in the US general population in 2017.<sup>6</sup> The percentage of respondents satisfied with work-life balance was similar between physicians (42.8% [2,056/4,809]) and veterinarians (39.6% [1,132/2,858]) and was lower than that of the general population (61.3% [3,298/5,376]). However, veterinarian burnout scores were nearly 40% higher than physician burnout scores (mean score, 3.10 vs 2.24, respectively). Both values were higher than the mean score for other employed adults (2.00). Interestingly, the difference between veterinarians and physicians was not a function of hours worked. Overall, 41.8% (2,207/5,276) of physicians worked  $\geq 60$  h/wk, compared with 19.6% (380/1,934) of veterinarians, whereas only 6.4% (343/5,384) of other employed adults worked these hours.

The factors having the strongest associations with burnout scores on multiple regression analysis were lack of work-life balance, not enjoying work, not finding work invigorating, and having personal conflict with 1 or more work associates.

the difference between populations was not significant. Overall, 7.5% (215/2,874) of veterinarians had used cannabis within the past 30 days, compared with 9.9% (1,963/19,828) of nonveterinarians. Use of other recreational drugs was almost nonexistent.

## Suicide ideation, planning, and attempts

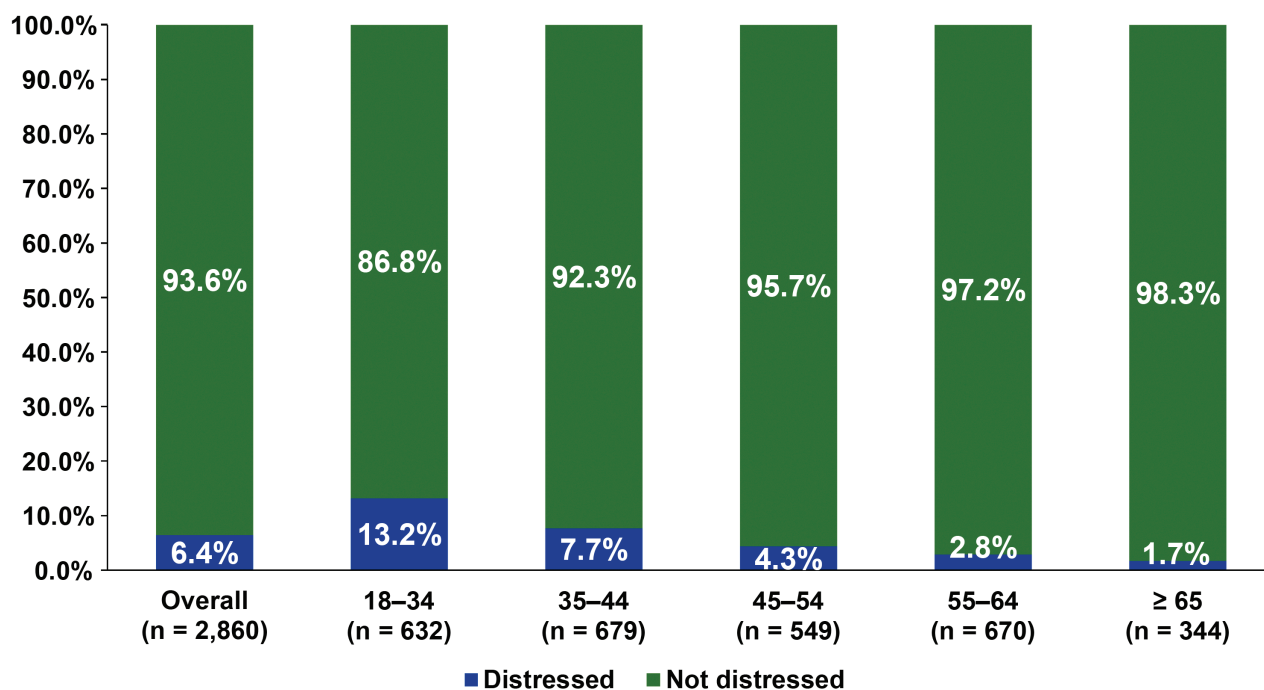
Suicide has become a major concern in the veterinary profession. Indeed, 89.1% (2,562/2,874) of respondents in the MAH Veterinarian Wellbeing Study II considered it one of the most critically important is-



**Figure 5**—Comparison of the distribution of mean instances of binge drinking in the past 30 days as reported by the respondents of Figure 1 (n = 2,874) and employed adults ( $\geq 25$  years) in the US general population as reported in the NSDUH (19,828).<sup>7</sup>

## Substance use

Binge drinking among veterinarians was slightly lower than among employed adults ( $\geq 25$  years) in the US general population (**Figure 5**), although



**Figure 4**—Percentages of the respondents of Figure 1 categorized as having serious psychological distress or no such distress, overall and by age group (y).

sues facing the profession, along with stress levels of veterinarians (91.9% [2,641/2,874]) and high student debt (90.5% [2,602/2,874]).

Overall, 7.5% (an estimated 7,455/100,000) of veterinarians indicated that they thought about killing themselves within the past year, which was more than twice the percentage among employed adults in the US general population (3.6% [3,600/100,000]). For veterinarians, 1.4% (1,463/100,000) went to the point of planning suicide, although < 0.2% (174/100,000) actually attempted suicide, representing 2.7 times the prevalence in the referent US general population (0.6% [64/100,000]). It is important to note that survey methodology did not provide any insight into the actual number or rate of suicides.

The most notable predictor of prior suicide attempts on multiple regression analysis was serious psychological distress as defined by the Kessler scale.

## Cyberbullying

Overall, 70.5% (2,025/2,874) of veterinarians considered cyberbullying and vicious online reviews a critically important issue facing the profession; 12.1% (349/2,874) reported having experienced cyberbullying and 20.4% (586/2,874) a vicious review in the past 12 months. The amount of time spent on social media was reflected in the prevalence of cyberbullying or vicious reviews in the past year, with

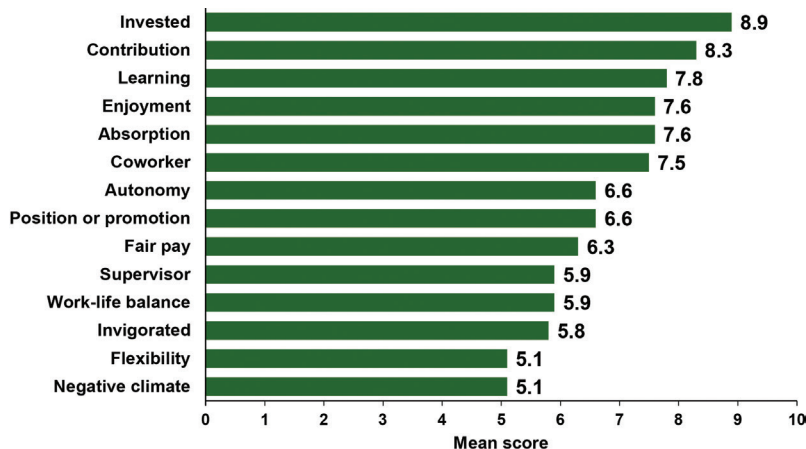
veterinarians who spent less time having a lower prevalence.

## Job satisfaction

The 2 dimensions generating the strongest agreement among the 14 evaluated dimensions of job satisfaction were “I am invested in my work and take pride in doing a good job” and “My work makes a positive contribution to other people’s lives” (**Figure 6**). This finding suggested that veterinarians in general like the actual work that they do and that other factors may contribute to lower overall job satisfaction.

On multiple regression analysis, the 4 dimensions associated with the highest levels of job satisfaction were good work-life balance, enjoying work, being paid fairly, and having a supportive relationship with coworkers. Of these predictors, good work-life balance and being paid fairly received the lowest endorsement and lowered overall job satisfaction.

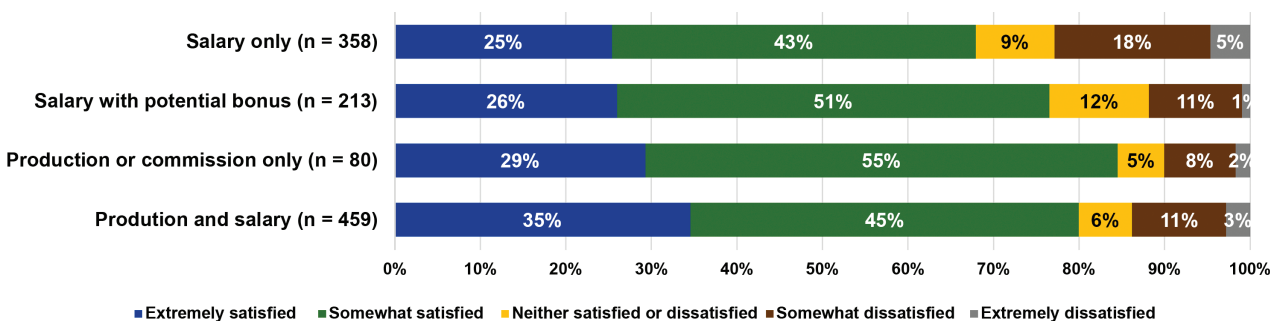
Interestingly, employment compensation method did not appear to contribute to job satisfaction, wellbeing, or mental health. Respondents employed in practice were nearly evenly split between those paid on a production basis or by salary (with or without the possibility of a performance bonus). Levels of satisfaction with the various compensation methods were similar, with low proportions indicating dissatisfaction (**Figure 7**).



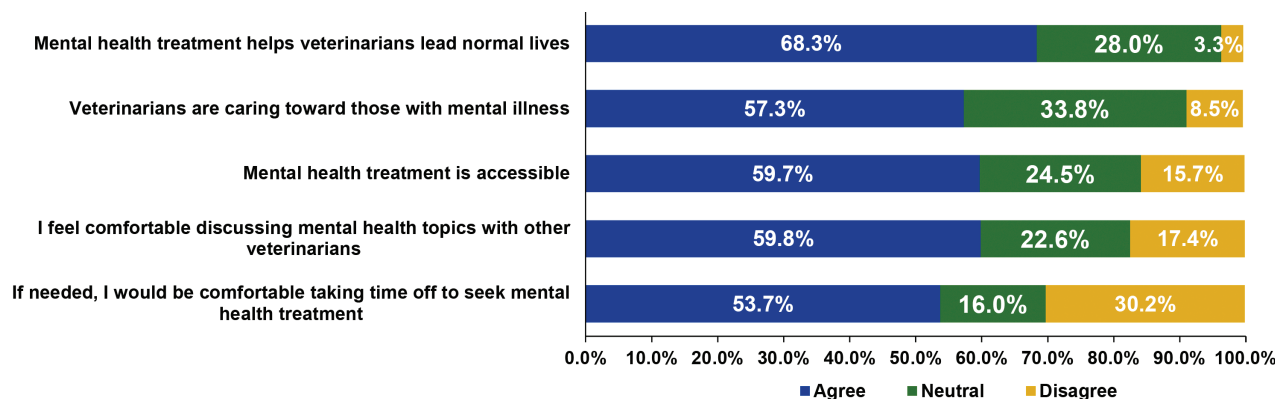
**Figure 6**—Mean ratings of 14 dimensions of job satisfaction by the respondents of Figure 1 (n = 2,874). Responses were converted to a 10-point scale, where 1 represented strongly disagree and 10 represented strongly agree.

## Attitude toward the veterinary profession

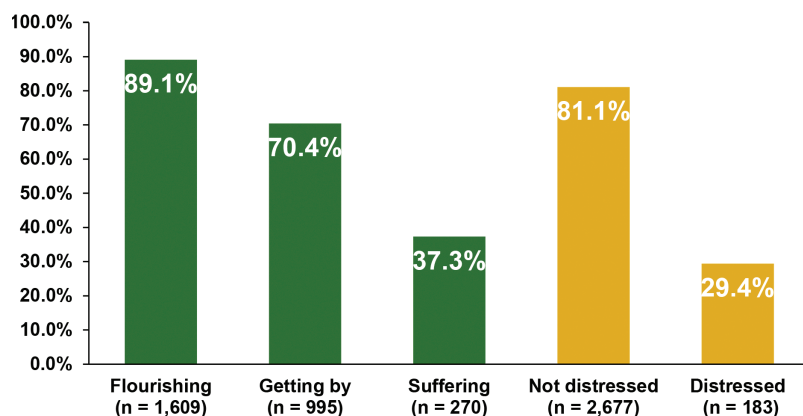
When respondents were asked whether they would recommend a veterinary career to a friend or family member, only 32.6% (936/2,874) said yes, identical to the percentage in the 2017 study.<sup>1</sup> Overall, 42.6% (1,223/2,874) of respondents said they would not recommend the profession and 24.9% (715/2,874) were undecided. When those who were undecided were asked to choose between recommending or not recommending the profession, a net of 48.0% (1,380/2,874) said they would recommend it and 52.0% (1,494/2,874) said they would not. The overall attitude of physicians was simi-



**Figure 7**—Percentages of the respondents of Figure 1 categorized by their level of job satisfaction.



**Figure 8**—Percentages of the respondents of Figure 1 (n = 2,874) who agreed with, were neutral toward, or disagreed with various statements regarding attitudes toward mental health.



**Figure 9**—Percentages of the respondents of Figure 1 (n = 2,874) with stress management plans, categorized by wellbeing level or whether they had serious psychological distress. See Figure 1 for remainder of key.

lar, with 51% of physicians recommending and 49% not recommending their profession in a 2018 survey.<sup>8</sup>

When asked in an open-ended question why they would not recommend the veterinary profession, the 2 most common responses were high student debt (50.2% [611/1,216]) and low pay (45.2% [550/1,216]); the third most common reason was stress (29.4% [358/1,216]).

### Attitude toward mental illness

Overall, 68.3% (1,964/2,874) of respondents agreed that mental health treatment helps veterinarians lead normal lives. Other responses suggested that many veterinarians feel comfortable discussing mental health (**Figure 8**).

### Self-care

Respondents who indicated that they had a stress management plan had a lower prevalence of serious psychological distress and a higher prevalence of wellbeing than did other respondents (**Figure 9**). Only 3.3% (36/1,100) of respondents who worked with a financial planner were classified as having serious psychological distress, compared with 9.3% (111/1,188) of those without a financial planner. Respondents who

worked with (vs without) a financial planner also had significantly higher levels of wellbeing.

## Conclusions

The MAH Veterinarian Wellbeing Study II confirmed results of the original 2017 study and added several new insights into veterinarian wellbeing and mental health. Clearly, more than half of veterinarians were mentally healthy and had high levels of wellbeing. They were invested in, and took pride in, their work and felt it contributed to the common good. Unfortunately, not all veterinarians were thriving, particularly younger veterinarians. When serious psychological distress was present, it was more

common among younger, female veterinarians. Many veterinarians were not getting the help they needed. Wellbeing resources made available by veterinary organizations such as the AVMA were not widely accessed.

Veterinary medicine is a stressful profession, as evidenced by high rates of burnout. Stress in veterinarians was considered the most critically important issue facing the profession by 92% of respondents. Financial stress in the form of high student debt and low incomes and poor work-life balance were major contributors. The fact that over half of veterinarians would not recommend the profession is sobering.

There are many things that both individuals and veterinary organizations can do to address the issues facing the profession as elucidated in the MAH Veterinarian Wellbeing Study II. On the basis of the results, we make the following recommendations.

## Recommendations

### Bring distress and mental health front and center

Although most respondents agreed with or had a neutral response to statements about mental health

and treatment, the stigma associated with these factors unquestionably remains. Such stigma can be reduced if mental health is addressed during in-hospital meetings and other gatherings of veterinarians. During team meetings, acknowledge that veterinary medicine is a stressful profession and that feelings of burnout are common. Group discussion will demonstrate to those feeling overwhelmed that they are not alone and give them permission to acknowledge their feelings.

Periodically inviting local mental health professionals to address team meetings will also make local resources more familiar to team members. Associate veterinarians and other employees could be given permission to schedule meetings with counselors—even during work hours—when needed. In addition, several tele-behavioral health resources are now available that individuals can access on their own time (eg E-counseling.com).

### Create a stress management plan

Given that stress is endemic to veterinary medicine and other health professions, it is important for each individual to have a stress management plan. Indeed, veterinarians with such a plan in the MAH Veterinarian Wellbeing Study II were less likely to experience serious psychological distress and more likely to be flourishing. Online resources are available that provide techniques for dealing with stress (eg, vetwellbeing.com and avma.org/resources-tools/wellbeing).

### Balance work and healthy activities

The value of a good balance between work and healthy, nonwork activities was repeatedly supported by the study findings. Good work-life balance contributes to higher wellbeing, less serious psychological distress, less burnout, and higher job satisfaction. As also identified in the 2017 study, spending time with family and friends were among the nonwork activities with the greatest positive impact. Other activities included exercising, having a hobby, traveling for pleasure, and reading for pleasure.

### Engage a financial planner

Given the prevalence of burdensome student debt and the huge impact of financial stress on veterinarians, it is prudent to seek professional financial advice. Veterinarians who worked with a financial planner were only a third as likely to experience serious psychological distress and had significantly higher levels of wellbeing, compared with those without a financial planner. For those with student debt, the VIN (Veterinary Information Network) Foundation Student Debt Center provides many resources (vinfoundation.org/resources/student-debt-center). Other resources are also available (eg, avma.org/membership/SAVMA/financing-your-veterinary-medical-education and vmae.org/veterinary-debt-initiative).

Fee-based financial planners are advisors who charge only for their professional services and are not affiliated with firms whose goal is to sell investment vehicles or other services. Fee-based financial planners can be found through the National Association of Personal Financial Advisers (NAFPA.org). For those who cannot afford a financial adviser, pro bono resources are available from the NAPFA Foundation (napfafoundation.org), Financial Planning Association (onefpa.org/advocacy/Pages/Pro\_Bono\_Financial\_Planning.aspx), and National Foundation for Credit Counseling (nfcc.org).

### Limit time on social media

Spending more than an hour a day on social media was negatively associated with wellbeing and mental health in both the 2017 and 2019 studies. Also, those who spent less time on social media had less exposure to cyberbullying or vicious reviews.

### Acknowledgments

The authors acknowledge the substantial contribution of Linda K. Lord, DVM, PhD, Merck Animal Health, who was deeply involved in the research but succumbed to cancer before its completion.

### References

1. Volk JO, Schimmack U, Strand E, et al. Executive summary of the Merck Animal Health Veterinary Wellbeing Study. *J Am Vet Med Assoc* 2018;252:1231-1238.
2. Kessler RC, Barker PR, Colpe LJ, et al. Screening for serious mental illness in the general population. *Arch Gen Psychiatry* 2003;60:184-189.
3. Diener E, Emmons RA, Larsen RJ, et al. The satisfaction with life scale. *J Pers Assess* 1985;49:71-75.
4. Cantril H. *The pattern of human concerns*. New Brunswick, NJ: Rutgers University Press, 1965.
5. Dyrbye LN, Satele D, Sloan J, et al. Utility of a brief screening tool to identify physicians in distress. *J Gen Intern Med* 2013;28:421-427.
6. Shanafelt TD, West CP, Sinsky C, et al. Changes in burnout and satisfaction with work-life integration in physicians and the general US working population between 2011 and 2017. *Mayo Clin Proc* 2019;94:1681-1694.
7. Substance Abuse and Mental Health Services Administration. Key substance use and mental health indicators in the United States: results from the 2018 National Survey on Drug Use and Health (HHS Publication No. PEP19-5068, NSDUH Series H-54). Rockville, Md: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, 2019. Available at: [www.samhsa.gov/data](http://www.samhsa.gov/data). Accessed Oct 10, 2019.
8. The Physicians Foundation. The Physicians Foundation 2018 physician survey. Available at [physiciansfoundation.org/research-insights/the-physicians-foundation-2018-physician-survey](http://physiciansfoundation.org/research-insights/the-physicians-foundation-2018-physician-survey). Accessed Dec 13, 2019.

#### In Times of Crisis

If you suspect someone may be a danger to themselves or others, dial 9-1-1.

To contact the National Suicide Prevention Lifeline, dial 1-800-273 TALK (8255).

Type "mobile crisis" into your computer search engine for assistance with a mental health crisis in virtually every community.

Text "Hello" to 741741 for access to a trained crisis counselor.