A survey of negative mental health outcomes, workplace and school climate, and identity disclosure for lesbian, gay, bisexual, transgender, queer, questioning, and asexual veterinary professionals and students in the United States and United Kingdom

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OBJECTIVE

To compare the prevalence of negative mental health outcomes among lesbian, gay, bisexual, transgender, queer, questioning, and asexual (LGBTQ+) veterinary professionals and students with the prevalence reported in a previous study of veterinarians; compare LGBTQ+ veterinary professionals and students in regard to access to LGBTQ+ policies and resources, workplace or school climate, and identity disclosure; and examine whether these variables were associated with mental health (eg, psychological distress) or work- and school-related (eg, emotional labor) outcomes.

SAMPLE

440 LGBTQ+ veterinary professionals and students in the United States and United Kingdom.

PROCEDURES

Between July and December 2016, a web-based questionnaire was distributed through email messages to members of LGBTQ+ veterinary groups and announcements at general veterinary and LGBTQ+-focused conferences and in newsletters.

RESULTS

Nonheterosexual cis men, nonheterosexual cis women, and transgender and nonbinary individuals all had higher lifetime prevalences of suicidal ideation and attempted suicide, compared with previously reported prevalences for male and female veterinarians in general. Professionals reported more welcoming climates than did students (eg, lower frequency of exposure to homophobic language and more supportive environments) and greater identity disclosure; however, students reported greater access to institutional resources and policies. Climate variables had a more robust relationship with negative outcomes than did access to LGBTQ+ policies or identity disclosure variables.

CONCLUSIONS AND CLINICAL RELEVANCE

Comparatively high rates of suicidal ideation and suicide attempts among LGBTQ+ professionals and students and the relationship between climate variables and negative mental health outcomes suggested enhanced efforts are needed to improve the climates in veterinary workplaces and colleges. (*J Am Vet Med Assoc* 2020;257:417–431)

Several studies[1–10] have found that veterinarians have higher psychological distress and a higher risk for suicide than do members of the general population.[1–10] However, little research is available on the mental health of other members of the veterinary workforce, and no studies, to our knowledge, have specifically addressed the experiences of veterinarians, veterinary students, and other veterinary team members (ie, veterinary technologists, veterinary technicians, veterinary assistants, and veterinary nurses) who are LGBTQ+.

ABBREVIATIONS

LGBTQ+ Lesbian, gay, bisexual, transgender, queer, questioning, and asexual

The percentage of veterinary professionals who self-identify as LGBTQ+ is unknown, but a 2011 survey of students at the 28 colleges of veterinary medicine in the United States at that time reported that 6.5% of respondents self-identified as LGBTQ+.[11] This is higher than the percentage of individuals who identified as gay, lesbian, bisexual, or transgender in a sample of the general population assessed in 2016.[12] Given that the LGBTQ+ population is well-represented in the veterinary profession and that previous research[13,14] has demonstrated that individuals who identify as LGBTQ+ have a higher risk for negative mental health outcomes (defined as outcomes that include psychiatric diagnoses [eg, depression or suicidal ideation], behavioral outcomes that have potential

mental health causes [eg, suicide attempts], and general psychological distress), it is important to assess the mental health of LGBTQ+ individuals who are studying and working in veterinary medicine. Unfortunately, the largest study of negative mental health outcomes among veterinarians conducted to date, a survey administered in 2014,[1] did not collect information about respondents' sexual orientation or gender identity. Thus, whether LGBTQ+ veterinarians have a higher risk for these outcomes, compared with their heterosexual, cisgender counterparts, is currently unknown.

Certain experiences of LGBTQ+ individuals are common across environments. For example, the decision to disclose one's sexual orientation or gender identity (ie, the decision to be out) at work or school is a stressor because either option—concealment versus being out—is accompanied by risks and benefits. Individuals who are out in their work or school environment may experience greater positive affect and self-esteem,[15] but they also face the risk of harassment and discrimination. Individuals who conceal their identity minimize the risk of negative consequences, but they then live with the fear of being outed and are at risk for psychological distress and depressive symptoms.[16,17] Importantly, not all LGBTQ+ individuals can choose to conceal a marginalized identity, and some LGBTQ+ individuals identify with multiple marginalized identities. Thus, it is important to determine whether LGBTQ+ veterinary professionals and students feel safe from harassment and discrimination in their workplaces and schools.

For the LGBTQ+ population, harassment and discrimination are threats to safety and the opportunity to thrive. In 2018 in the United Kingdom, approximately a fifth of LGBTQ+ employees reported being the target of negative comments or behavior despite implementation of the Equality Act of 2010, which protects individuals from discrimination in educational settings and at work.[18] In the United States, it is common for LGBTQ+ employees to report discrimination, and although the US Supreme Court recently offered workplace protections for this group, many states still do not provide protections against housing, public accommodation, and lending discrimination related to sexual orientation or gender identity.[19] Unfortunately, a similar pattern is seen in colleges and universities in the United States and United Kingdom, where LGBTQ+ undergraduate, graduate, and professional students commonly experience harassment related to sexual orientation or gender identity.[20,21] The consequences of acknowledging an LGBTQ+ identity can range from negative comments to missed job opportunities to physical assault, which leads many individuals to conceal their sexual orientation, gender identity, or both.

Concealing one's sexual orientation or gender identity has been linked to heightened psychological distress and a greater risk of depressive symptoms.[22–24] Concealment may also require additional expenditures of emotional labor, a term originally developed to describe the experiences of client service professionals.[25] Emotional labor can be separated into 2 components: surface acting and deep acting. Surface acting refers to an individual adjusting their displayed feelings (eg, pretending to feel sympathy) while disguising their true feelings (eg, anger, resentment, fear, and exhaustion). Deep acting refers to an individual attempting to conjure up expected feelings, such as sympathy, from within (eg, actually feeling sympathy rather than pretending to feel sympathy). Expending high levels of emotional labor to conform to others' expectations is related to negative mental health outcomes, including emotional exhaustion, a key component of burnout.[25] Veterinarians, veterinary students, and other veterinary team members often have professional responsibilities that demand high levels of emotional labor, but members of the LGBTQ+ population who conceal their identity at work or on campus may be required to engage in even higher levels of emotional labor, perhaps leading to emotional exhaustion. Presently, data are lacking on how open LGBTQ+ members of the veterinary community are regarding their sexual orientation and gender identity when in or out of their workplaces and schools and on the mental health effects of being openly LGBTQ+ versus being concealed. In addition, it is unclear whether there is a relationship between an individual's openness about their LGBTQ+ identity and the emotional labor they perform or the emotional exhaustion they experience in the workplace or at school.

Employers can issue formal nondiscrimination policies; however, a recent meta-analysis[26] of 27 studies that systematically reviewed occupation-related outcomes for LGBTQ+ employees found that supportive workplace environments and supportive social relationships in the workplace were more important predictors of outcomes (eg, job satisfaction and psychological strain) than the mere presence of formal nondiscrimination policies. Although we are unaware of any published studies describing the experiences of LGBTQ+ veterinary professionals at work, LGBTQ+ physicians in the United States report experiencing discrimination in the workplace as well as during their medical training.[27,28] Thus, it is likely that veterinary professionals who identify as LGBTQ+ also experience harassment and discrimination that has an effect on their mental health while at work or school, but that information has not been collected in past surveys. The experiences of other veterinary team members (eg, veterinary technicians) have also not been included in previous research.

On the other hand, a 2011 survey[11] of 28 US colleges of veterinary medicine revealed that > 20% of LGBTQ+ students heard homophobic comments occasionally to very frequently at school. This study did not evaluate effects on mental health or academic outcomes; however, findings from other studies[29–32] suggest that exposure to harassment and discrimination hinders the academic performance of LGBTQ+ students.

The present study was developed following a roundtable discussion on wellness hosted by the AVMA in 2016 that established the need to study wellness issues in the LGBTQ+ veterinary community.[33] Specifically, the primary objective of our study was to compare the prevalence of negative mental health outcomes (specifically, current serious psychological distress, a previous depressive episode, a previous episode of suicidal ideation, and a previous suicide attempt) among LGBTQ+ veterinary professionals (ie, veterinarians, veterinary technologists, veterinary technicians, veterinary assistants, and veterinary nurses) and students with the prevalence reported in a previous study[1] of veterinarians assumed to primarily not be LGBTQ+. On the basis of previous research outside the veterinary profession, we expected that LGBTQ+ veterinary professionals and students would have higher rates of these negative mental health outcomes. We also sought to compare the experiences of LGBTQ+ veterinary professionals with those of LGBTQ+ veterinary students on a variety of outcomes related to workplace or school climate and identity disclosure. Given the lack of prior research on this topic within the veterinary profession, we did not have a priori hypotheses regarding differences between the experiences of LGBTQ+ veterinary professionals and LGBTQ+ veterinary students. Finally, we sought to examine relationships between workplace or school climate and identity disclosure and a variety of negative mental health and work- and school-related emotional outcomes. We expected that indicators of negative or unsupportive climates at work and school would be associated with higher psychological distress, work or school daily stress, and emotional labor. For the veterinary professionals, we also expected these variables to be associated with higher emotional exhaustion and lower job satisfaction.

Materials and Methods

The study was designed as an online cross-sectional survey of individuals who identified as LGBTQ+. Individuals considered for inclusion in the study were veterinary professionals (ie, veterinarians, veterinary technologists, veterinary technicians, veterinary assistants, and veterinary nurses) and students in the United States and United Kingdom who identified as LGBTQ+ and were at least 18 years of age. Our primary recruitment strategy involved emailing individuals who were members of LGBTQ+ veterinary groups (ie, Pride VMC, Broad Spectrum Veterinary Student Association, and British Veterinary LGBT group). These emails were sent on a monthly basis from July through December 2016 and contained a link to an anonymous, electronic survey hosted by a commercial survey software company.[a] The study was also advertised through announcements at general veterinary and LGBTQ+-focused conferences and in various newsletters. Announcements were made at the 2016 AVMA Convention in San Antonio, Tex, and at the 2016 Veterinary Wellness Summit at Colorado State University in Fort Collins, Colo; through social media postings by the British Small Animal Veterinary Association and the British Veterinary Association; and in news stories published in *JAVMA*[34] and the LGVMA (now Pride VMC) newsletter.[35] To incentivize participation, respondents were offered the chance to be enrolled in a raffle for 10 cash prizes of $20 each. Study procedures were reviewed and approved by the Auburn University Institutional Review Board.

Survey

The survey used for the study contained questions related to demographics (including race, ethnicity, gender identity, sexual orientation, professional title, and state or country of residence), negative mental health outcomes, workplace and school climate, identity disclosure, and work- and school-related emotional outcomes.

Negative mental health outcomes

Negative mental health outcomes of interest were whether respondents were currently experiencing serious psychological distress and whether they had previously had a depressive episode, had an episode of suicidal ideation, or attempted suicide. To allow comparison with results reported by Nett et al,[1] the Kessler 6 psychological distress scale was used to measure severity of psychological distress, and the same questions used by Nett et al[1] to elicit information on respondents' history of depression (ie, have you ever had a significant problem with clinical depression?), suicidal ideation (ie, have you ever seriously considered suicide?), and suicide attempts (ie, have you ever attempted suicide?) were included. Consistent with procedures reported by Nett et al,[1] missing responses for these questions were grouped with *no* responses. Therefore, percentages of respondents who selected *yes* represented conservative estimates of prevalence.

The Kessler 6 psychological distress scale[36] asked respondents to score, on a scale from 0 (none of the time) to 4 (all of the time), how often they had felt nervous, hopeless, restless or fidgety, so depressed that nothing could cheer them up, that everything was an effort, and worthless during the preceding 30 days. Scores for each of the 6 items were summed, and respondents with a score ≥ 13 were characterized as currently experiencing serious psychological distress. This cutpoint had been established by Kessler et al[36] because it equalized the numbers of false-positive and false-negative results when detecting severe mental illness in the general population. For comparison with results of Nett et al,[1] this variable was treated as dichotomous. For all other analyses, it was treated as continuous.

Workplace and school climate

Several survey questions were included to determine the overall climate for LGBTQ+ respondents in their workplaces and schools. A single question (ie,

have you experienced difficulties related to your sexual orientation or gender identity in school or professional settings?) was used to assess overall climate. In addition, respondents were presented a list of 11 policy and resource items derived from a previous study[37] or developed to address trans-specific issues and asked to indicate (yes, no, or don't know) whether these policies and resources were available in their workplace or school (note that a *no* response may have reflected an absence of the policy or resource or a lack of awareness about that policy or resource). We then created a total score for the number of LGBTQ+ policies and resources by totaling the number of *yes* responses for the 11 items.

Three questions were adopted from a previous survey.[11] Respondents were asked to indicate, on a scale from 1 (very supportive) to 5 (very unsupportive), their response to the following question: how supportive and understanding do you feel your workplace (school) is of lesbian, gay, bisexual, and/or transgender employees (students)? They were also asked to indicate, again on a scale from 1 (never) to 5 (frequently), how often they were exposed to homophobic remarks and how often they were exposed to negative remarks about gender expression at work or school.

Identity disclosure

To determine the degree of disclosure about LGBTQ+ identities and perceptions of the negative consequences of disclosure, respondents were asked to indicate whether they knew of other employees or students who were openly LGBTQ+. In addition, nonheterosexual respondents were asked to indicate the extent to which they had disclosed their sexual orientation, on a scale from 1 (no one) to 4 (everyone). Transgender and nonbinary respondents were asked to indicate the extent to which they had disclosed their gender identity, again on a scale from 1 (no one) to 4 (everyone).

The Fear of Disclosure Scale[16] was used to assess perceived consequences of disclosing sexual orientation and gender identity at work and school. Respondents rated, on a 7-point scale (1 = completely disagree; 7 = completely agree), the extent to which they agreed or disagreed that they would experience each of the following 7 perceived consequences if they were to disclose their sexual orientation or gender identity to everyone at work or school: I would be excluded from formal networks, I would be ostracized, my career would be ruined, people would avoid me, I would be harassed, I would lose the opportunity to be mentored, and coworkers/fellow students would feel uncomfortable around me. Scores for the 7 items were averaged to obtain a total score for sexual orientation and a total score for gender identity. Respondents were only administered the sexual orientation version if they were nonheterosexual and indicated that they were not open about their sexual orientation to everyone at work or school. Respondents were only administered the gender identity version if they were transgender or nonbinary and indicated that they were not open about their gender identity to everyone at work or school.

Finally, the Outness Inventory[38] was used to assess respondents' general openness about their sexual orientation and gender identity to people in their lives. Respondents were asked to indicate how open they were on a 7-point scale (1 = person definitely does not know about your sexual orientation status; 2 = person might know about your sexual orientation status, but it is never talked about; 3 = person probably knows about your sexual orientation status, but it is never talked about; 4 = person probably knows about your sexual orientation status, but it is rarely talked about; 5 = person definitely knows about your sexual orientation status, but it is rarely talked about; 6 = person definitely knows about your sexual orientation status, and it is sometimes talked about; and 7 = person definitely knows about your sexual orientation status, and it is openly talked about). Participants could choose *not applicable* if there was no such person or group of people in their lives. These items were also administered to assess openness about gender identity, with the exception that *gender identity* replaced *sexual orientation* in the response options. Scores were averaged to calculate an overall score. Respondents were only administered the sexual orientation version if they were nonheterosexual and were only administered the gender identity version if they were transgender or nonbinary.

The Outness Inventory consisted of 2 subscales. The family subscale assessed respondents' openness to each of the following individuals or groups of individuals: mother, father, siblings, extended family members, and other relatives. The world subscale consisted of 4 items that assessed respondents' openness to nonrelated individuals. Two of these items had slightly different wording for veterinary professionals than for veterinary students. Specifically, professionals were asked about work peers and work supervisors, whereas students were asked about school peers and faculty at their school. The other 2 items were identical for veterinary professionals and students and asked about new heterosexual friends and strangers.

Work- and school-related emotional outcomes

We assessed several variables related to negative emotional experiences at work and school. A single item adapted from an unpublished survey conducted by the Student AVMA[39] asked respondents to rate, on a scale from 1 (no stress) to 5 (unmanageable stress), their stress level during a typical work week or typical week when school was in session.

The surface acting and deep acting subscales of the Emotional Labor Scale[25] were used to assess respondents' emotional labor. Respondents were asked to respond to the items as they pertained to their

work or school experiences. There were 3 items for each subscale, with 1 item for the deep acting subscale modified slightly for students to refer to their training rather than their job. A sample item from the surface acting scale was "resist expressing my true feelings"; a sample item from the deep acting scale was "make an effort to actually feel the emotions that I need to display toward others." Respondents rated each item on a scale from 1 (never) to 5 (always), and scores for each item were added to compute a total score.

Emotional exhaustion and job satisfaction were assessed only for respondents who identified themselves as veterinary professionals. The 9-item emotional exhaustion subscale from the Maslach Burnout Inventory[40] was used to assess emotional exhaustion. Each item was rated on a 7-point scale from 1 (never) to 7 (every day), and scores for the individual items were added to compute the total score. Three items from the Job Diagnostic Survey[41] (generally speaking, I am very satisfied with my job; I frequently think of quitting my job [reverse scored]; and I am generally satisfied with the kind of work I do in my job) were used to assess job satisfaction. Items were scored on a scale from 1 (disagree strongly) to 7 (agree strongly), and scores for the 3 items were added to compute the total score.

Data analysis

Prevalences of current serious psychological distress, a previous depressive episode, a previous episode of suicidal ideation, and a previous suicide attempt were calculated as percentages of respondents who replied *yes*; 95% CIs were calculated with an online calculator on the basis of the binomial exact method.[b] Pairwise comparisons between prevalences for nonheterosexual cis men, nonheterosexual cis women, and transgender or nonbinary individuals in the present study and prevalences for men and women in the study by Nett et al[1] were performed with an online calculator on the basis of the z score.[c]

Descriptive statistics were calculated for demographic characteristics of the respondents, and bivariate correlations were calculated between workplace and school climate variables and identity disclosure variables and between degree of psychological distress (as measured with the Kessler 6 scale) and work- and school-related emotional outcomes. Workplace and school climate variables and identity disclosure variables were compared between veterinary professionals and veterinary students by means of χ^2 tests for categorical variables and linear regression analysis for continuous variables. For the χ^2 tests, categories were combined as necessary if the expected value for any cell was < 5. For the linear regression analyses, a dummy-coded categorical predictor variable for professionals and students was included, and the robust maximum likelihood estimator was used, which is appropriate when variables are not normally distributed.[42] Standard software[43,d] was used for these analyses. Correlation coefficients (ie, r values) > 0.30 but ≤ 0.50 (or < −0.30 but ≥ −0.50) were considered indicative of medium effects, and coefficients > 0.50 (or < −0.50) were considered indicative of large effects.[44]

Separate regression models were used to test whether workplace and school climate variables or identity disclosure variables were significantly associated with psychological distress, work- and school-related stress, surface acting, and deep acting scores. For veterinary professionals, regression models were used to test whether these variables were associated with emotional exhaustion or job satisfaction scores. Logistic regression models were used when outcomes were dichotomous, and linear regression models were used when outcomes were continuous. In these regression models, we used dummy variables to control for gender identity (ie, cis female and transgender or nonbinary individual), given that analyses revealed an association between gender identity and several primary predictor variables. These dummy variables were coded such that cis male gender was the reference group. We also controlled for whether participants were professionals versus students and examined whether professional-versus-student status interacted with each predictor. When this interaction term was not statistically significant, we removed it from the model and examined the main effects. When it was statistically significant, we probed the interaction by running the model separately for professionals and then for students.

For all regression models, missing data were handled by use of the full information maximum likelihood method. When outcomes were continuous, we used age as an auxiliary variable in a saturated correlates model to improve accuracy of parameter estimates[45–47] and were able to accommodate missingness for all variables in the model. However, when outcomes were binary or ordered categorical, we were unable to use auxiliary variables to accommodate data that were missing. To reduce type I error inflation, we used the linear step-up approach.[48] For all analyses, values of $P < 0.05$ were considered significant.

Results

Respondents

Of 442 participants who began the survey, 390 (88%) completed it in its entirety. Median response time for those who completed the survey was 14.3 minutes (mean, 45.3 minutes; SD, 340.9 minutes). Two participants who completed the survey but for whom response duration was < 5 minutes were eliminated because of likely inattentive responding. Thus, a total of 440 respondents were included in the study.

Most respondents were white, non-Hispanic, cis females who identified as lesbian, gay, or bisexual **(Table 1)**. In addition, most respondents were either veterinarians or veterinary students, with a handful of participants from other professional categories. There was fairly broad regional representation, with respondents residing in 34 states; 77 of the 440

Table 1—Demographic characteristics of respondents (n = 440) to a survey of negative mental health outcomes, workplace and school climate, and identity disclosure for LGBTQ+ veterinary professionals and students in the United States and United Kingdom.

Variable	No. (%) of respondents
Race*	
White	415 (94.3)
Asian	17 (3.9)
Black	9 (2.0)
American Indian/Alaska Native	7 (1.6)
Native Hawaiian/Pacific Islander	1 (0.2)
Other	9 (2.0)
Ethnicity	
Hispanic/Latino	17 (3.9)
Not Hispanic/Latino	422 (95.9)
Missing	1 (0.2)
Gender identity	
Cis female	273 (62.0)
Cis male	135 (30.7)
Transgender (male to female)	2 (0.5)
Transgender (female to male)	7 (1.6)
Do not identify as male or female	20 (4.5)
Prefer not to answer	3 (0.7)
Sexual orientation	
Lesbian	130 (29.5)
Gay	124 (28.2)
Bisexual	104 (23.6)
Queer	28 (6.4)
Questioning	15 (3.4)
Asexual	15 (3.4)
Straight/heterosexual†	3 (0.7)
Other	21 (4.8)
Professional title	
Veterinarian	208 (47.3)
Veterinary technologist	1 (0.2)
Veterinary technician	22 (5.0)
Veterinary assistant	6 (1.4)
Veterinary nurse	8 (3.3)
Student‡	195 (44.3)
Region§	
New England (MA, RI, VT)	24 (5.5)
Mid Atlantic (NJ, NY, PA)	28 (6.4)
East North Central (IL, IN, MI, OH, WI)	76 (17.3)
West North Central (KS, MN, MO)	24 (5.5)
South Atlantic (DE, DC, FL, GA, MD, NC, VA, WV)	69 (15.7)
East South Central (AL, KY, TN)	9 (2.0)
West South Central (OK, TX)	19 (4.3)
Mountain (AZ, CO, UT)	18 (4.1)
Pacific (CA, OR, WA, HI)	84 (19.1)
United Kingdom‖	77 (17.5)
No information available	12 (2.7)

*Respondents were able to select ≥ 1 race. †All of these respondents identified as a gender identity other than cis male or cis female. ‡All but 5 of these students were in training to be a veterinarian. §States indicated represent states from which ≥ 1 response was received; responses were not received from the remaining 16 states. ‖England, Scotland, Wales, and Northern Ireland.

(17.5%) respondents resided in the United Kingdom. Respondents ranged from 18 to 73 years of age (mean, 34.4 years; SD, 12.8 years). For the purposes of data analysis, all participants whose gender identity was neither cis male nor cis female were combined into a transgender or nonbinary category.

Analysis of bivariate correlations for workplace and school climate and identity disclosure variables revealed a large number of significant correlations **(Table 2)**. In general, respondents' perceptions of how supportive or understanding the workplace or school was toward LGBTQ+ individuals had medium to large correlations with most of the climate and identity disclosure variables. In particular, greater perceived unsupportiveness of LGBTQ+ individuals was strongly correlated with higher perceived negative consequences of disclosing one's sexual orientation ($r = 0.62$) and gender identity ($r = 0.76$). In addition, perceived unsupportiveness had a more robust and consistent relationship with other climate and identity variables than did the total score for the number of LGBTQ+ policies and resources. Unexpectedly, knowing other employees or students who were openly LGBTQ+ was only minimally associated with the other climate and identity disclosure variables. Finally, experiencing difficulties related to one's sexual orientation or gender identity was only modestly associated with most of the other climate and identity disclosure variables, with the exception of fear of disclosure of one's sexual orientation ($r = 0.35$).

With 1 exception (deep acting), psychological distress scores had medium to large correlations with work- and school-related emotional outcomes, and most of the emotional outcomes had medium to large correlations with each other **(Table 3)**. In particular, emotional exhaustion and job satisfaction scores for veterinary professionals had a large negative correlation ($r = -0.66$).

Prevalence of negative mental health outcomes

Nonheterosexual cis men, nonheterosexual cis women, and transgender and nonbinary individuals all had higher lifetime prevalences of suicidal ideation and attempted suicide than did male and female veterinarians in general, as reported by Nett et al[1] ($P < 0.003$ for all comparisons; **Figure 1**). Thirty-nine of the 135 (29%) nonheterosexual cis men, 98 of the 273 (36%) nonheterosexual cis women, and 16 of the 32 (50%) transgender or nonbinary individuals reported a previous episode of suicidal ideation; nonheterosexual cis men had a significantly ($P = 0.02$) lower prevalence of previous suicidal ideation than did transgender and nonbinary individuals, but the prevalence of suicidal ideation for nonheterosexual cis women was not significantly ($P > 0.11$) different from that for nonheterosexual cis men or that for transgender and nonbinary individuals. Thirteen of the 135 (10%) nonheterosexual cis men, 21 of the 273 (8%) nonheterosexual cis women, and 5 of the 32 (16%) transgender and nonbinary individuals reported a previous suicide attempt; these percentages did not differ significantly ($P > 0.13$ for all comparisons) among the 3 groups.

Transgender and nonbinary individuals had a significantly ($P < 0.01$ for all comparisons) higher prevalence of serious psychological distress (Kessler 6 score ≥ 13; 13/32 [41%]) than did the other

Table 2—Results of analyses of bivariate correlations for workplace and school climate and identity disclosure variables for respondents in Table 1.

	Correlation coefficient (*r*)													
Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
1. Experienced difficulties related to LGBTQ+ status														
2. Total number of LGBTQ+ policies and resources	0.00													
3. Knew other LGBTQ+ employees or students	–0.06	0.36*												
4. Unsupportiveness of workplace or school	0.22*	–0.35*	–0.17*											
5. Frequency of homophobic remarks	0.27*	–0.18*	–0.02	0.46*										
6. Frequency of negative remarks about gender expression	0.22*	–0.16*	–0.06	0.45*	0.70*									
7. Disclosed sexual orientation at work or school†	0.08	0.20*	0.19*	–0.36*	–0.21*	–0.22*								
8. Outness Inventory (sexual orientation): family†	0.09	0.14*	–0.03	–0.32*	–0.15*	–0.20*	0.64*							
9. Outness Inventory (sexual orientation): world†	0.10*	0.09	–0.04	–0.35*	–0.19*	–0.23*	0.80*	0.70*						
10. Fear of Disclosure Scale (sexual orientation)‡	0.35*	–0.27*	–0.11	0.62*	0.50*	0.49*	–0.23*	–0.26*	–0.26*					
11. Disclosed gender identity at work or school§	0.13*	–0.04	0.03	0.05	0.12*	0.18*	–0.03	–0.03	–0.05	0.12				
12. Outness Inventory (gender identity): family§	0.12	0.18	0.03	0.07	0.19	0.29	0.14	0.48*	0.28	0.43*	0.52*			
13. Outness Inventory (gender identity): world§	0.19	–0.03	0.14	–0.15	0.21	0.29	0.45*	0.24	0.33	0.16	0.74*	0.66*		
14. Fear of Disclosure Scale (gender identity)¶	0.18	–0.45*	–0.24	0.76*	0.40*	0.44*	–0.02	–0.22	–0.17	0.79*	–0.26	0.19	0.13	
No. of respondents	440	440	440	399	399	399	440	397	396	242	440	27	27	25
Mean score	0.37	4.04	0.77	1.90	2.18	2.10	2.72	5.64	4.96	2.12	0.12	2.98	2.69	3.39
SD	0.48	2.84	0.42	0.87	1.22	1.20	1.21	2.36	2.10	1.15	0.49	2.50	1.81	1.84

*Correlation coefficient was significantly (2-tailed value of $P < 0.05$) different from 0. †Only asked of nonheterosexual respondents. ‡Only asked of nonheterosexual respondents who indicated that they were not open about their sexual orientation to everyone at work or school. §Only asked of transgender or nonbinary respondents. ¶Only asked of transgender and nonbinary respondents who indicated that they were not open about their gender identity to everyone at work or school.

Table 3—Results of analyses of bivariate correlations for negative mental health outcomes and work- and school-related emotional outcomes for respondents in Table 1.

	Correlation coefficient (*r*)					
Variable	**1**	**2**	**3**	**4**	**5**	**6**
1. Psychological distress score (continuous)						
2. Work- and school-related stress	0.52*					
3. Surface acting score	0.48*	0.33*				
4. Deep acting score	0.25*	0.21*	0.46*			
5. Emotional exhaustion score†	0.60*	0.58*	0.56*	0.22*		
6. Job satisfaction score†	–0.45*	–0.36*	–0.40*	–0.12	–0.66*	
No. of respondents	385	377	378	378	213	214
Mean score	7.56	3.20	8.50	7.47	32.59	15.53
SD	5.16	0.81	2.56	3.00	13.71	4.69

*Correlation coefficient was significantly (2-tailed value of $P < 0.05$) different from 0. †Only asked of veterinary professionals.

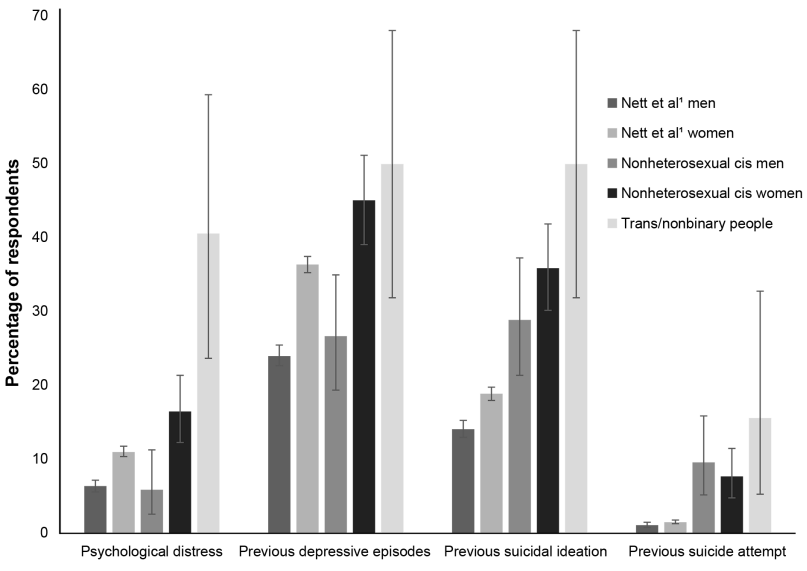

Figure 1—Prevalence of serious psychological distress (ie, Kessler 6 psychological distress score ≥ 13), a history of depressive episodes, a history of suicidal ideation, and a history of attempted suicide for respondents (n = 440) to a survey of LGBTQ+ veterinary professionals and students in the United States and United Kingdom and for a previously reported survey by Nett et al[1] of male and female veterinarians in general. Error bars represent 95% CIs, with a lack of overlap among error bars representing one indicator of differences across groups. ***See*** text for results of statistical tests of group comparisons.

4 groups (Figure 1). Nonheterosexual cis women (45/273 [16%]) had a significantly ($P = 0.005$) higher prevalence of serious psychological distress than did female veterinarians in general.[1] However, the prevalence of serious psychological distress did not differ significantly ($P = 0.23$) between nonheterosexual cis men (8/135 [6%]) and male veterinarians in general.[1] Transgender and nonbinary individuals had the highest prevalence of previous depressive episodes (16/32 [50%]), which was significantly different from the prevalences for male veterinarians in general[1] ($P = 0.001$) and for nonheterosexual cis men ($P = 0.01$) but was not significantly ($P > 0.11$ for both comparisons)

Table 4—Comparison of responses to workplace and school climate survey questions for veterinary professionals (n = 245) and veterinary students (195) in Table 1.

Variable	Professionals	Students	*P* value
Experienced difficulties related to sexual orientation or gender identity in school or professional settings			< 0.001*
Yes	110 (45)[a]	52 (27)[b]	
No or missing response	135 (55)[a]	143 (73)[b]	
Workplace and school LGBTQ+ policies and resources			
Written nondiscrimination policy that includes sexual orientation			0.008*†
Yes	148 (60.4)	93 (47.7)	
No	41 (16.7)	0 (0.0)	
Don't know or missing response	56 (22.9)	102 (52.3)	
Written nondiscrimination policy that includes gender identity			0.29†
Yes	78 (31.8)	53 (27.2)	
No	71 (29.0)	3 (1.5)	
Don't know or missing response	96 (39.2)	139 (71.3)	
Sexual orientation included in definition of diversity			0.10†
Yes	124 (50.6)	114 (58.5)	
No	42 (17.1)	2 (1.0)	
Don't know or missing response	79 (32.2)	79 (40.5)	
Gender identity included in definition of diversity			0.02*†
Yes	69 (28.2)	76 (39.0)	
No	60 (24.5)	4 (2.1)	
Don't know or missing response	116 (47.3)	115 (59.0)	
Awareness of lesbian, gay, and bisexual issues included in diversity training			0.001*
Yes	60 (24.5)[a]	73 (37.4)[b]	
No	102 (41.6)[a]	24 (12.3)[b]	
Don't know or missing response	83 (33.9)[a]	98 (50.3)[b]	
Awareness of trans issues included in diversity training			0.001*
Yes	36 (14.7)[a]	38 (19.5)[a]	
No	115 (46.9)[a]	32 (16.4)[b]	
Don't know or missing response	94 (38.4)[a]	125 (64.1)[b]	
Offers same-sex domestic partner benefits			< 0.001*
Yes	129 (52.7)[a]	17 (8.7)[b]	
No	56 (22.9)[a]	8 (4.1)[b]	
Don't know or missing response	60 (24.5)[a]	170 (87.2)[b]	
Offers trans-inclusive health-care benefits			< 0.001*
Yes	29 (11.8)[a]	8 (4.1)[b]	
No	71 (29.0)[a]	12 (6.2)[b]	
Don't know or missing response	145 (59.2)[a]	175 (89.7)[b]	
Offers lesbian, gay, and bisexual resources or support groups			< 0.001*
Yes	45 (18.4)[a]	124 (63.6)[b]	
No	140 (57.1)[a]	14 (7.2)[b]	
Don't know or missing response	60 (24.5)[a]	57 (29.2)[a]	
Offers trans-inclusive resources or support groups			< 0.001*
Yes	25 (10.2)[a]	86 (44.1)[b]	
No	137 (55.9)[a]	15 (7.7)[b]	
Don't know or missing response	83 (33.9)[a]	94 (48.2)[b]	
Welcomes same-sex partners at social events			0.230†
Yes	201 (82.0)	151 (77.4)	
No	7 (2.9)	4 (2.1)	
Don't know or missing response	37 (15.1)	40 (20.5)	
Total No. of LGBTQ+ policies and resources	3.85 (2.97)	4.27 (2.66)	0.12
How supportive and understanding workplace or school is of LGBTQ+ employees and students			< 0.001*‡
Very supportive	105 (42.9)[a]	39 (20.0)[b]	
Supportive	76 (31.0)[a]	98 (50.3)[b]	
Neither supportive nor unsupportive	37 (15.1)[a]	29 (14.9)[a]	
Unsupportive	3 (1.2)[a]	5 (2.6)[a]	
Very unsupportive	4 (1.6)[a]	3 (1.5)[a]	
Missing response	20 (8.2)[a]	21 (10.8)[a]	
How often exposed to homophobic remarks at work or school			< 0.001*
Never	116 (47.3)[a]	47 (24.1)[b]	
Very rarely	46 (18.8)[a]	47 (24.1)[a]	
Rarely	29 (11.8)[a]	35 (17.9)[a]	
Occasionally	28 (11.4)[a]	38 (19.5)[b]	
Frequently	6 (2.4)[a]	7 (3.6)[a]	
Missing response	20 (8.2)[a]	21 (10.8)[a]	
How often exposed to negative remarks about gender expression at work or school			0.02*
Never	115 (46.9)[a]	60 (30.8)[b]	
Very rarely	49 (20.0)[a]	42 (21.5)[a]	
Rarely	30 (12.2)[a]	31 (15.9)[a]	
Occasionally	26 (10.6)[a]	36 (18.5)[b]	
Frequently	5 (2.0)[a]	5 (2.6)[a]	
Missing response	20 (8.2)[a]	21 (10.8)[a]	

Data are given as number (%) of respondents.

*Statistically significant after accounting for type I error with the linear step-up approach.[48] †Because expected responses for some cells were < 5, *no* responses and *don't know or missing* responses were combined for χ^2 analysis. ‡Because expected responses for some cells were < 5, *unsupportive* and *very unsupportive* responses were combined for χ^2 analysis.

[a,b]Values in a row with different superscript letters were significantly ($P < 0.05$) different, as determined by the use of *z* tests between groups with a Bonferroni correction.

different from prevalences for female veterinarians in general[1] or for nonheterosexual cis women. Nonheterosexual cis women had a significantly (P = 0.003) higher prevalence of previous depressive episodes (123/273 [45%]) than did female veterinarians in general.[1] However, the prevalence of previous depressive episodes did not differ significantly (P = 0.47) between nonheterosexual cis men (36/135 [27%]) and male veterinarians in general.[1]

Because respondents in the study by Nett et al[1] consisted exclusively of veterinarians whereas respondents in the present study included not just veterinarians but also veterinary students and other veterinary professionals, the data were reanalyzed with responses only from veterinarians. The overall pattern of prevalences was similar; however, owing to the smaller sample size, the confidence intervals were wider and were more likely to overlap (**Supplementary Figure S1**, available at: avmajournals.avma.org/doi/suppl/10.2460/javma.257.4.417).

Workplace and school climate

Veterinary professionals were significantly (P < 0.001) more likely than veterinary students to indicate that they had experienced difficulties related to their sexual orientation or gender identity in the workplace or at school **(Table 4)**. For 8 of the 11 LGBTQ+ policies and resources, significant differences were found between veterinary professionals and students with regard to whether those policies and resources were available in the workplace or at school. The exceptions were whether respondents felt that same-sex partners would be welcome at social events (352/440 [80%] said *yes*), having a written nondiscrimination policy that includes gender identity (131/440 [30%] said *yes*), and including sexual orientation in the definition of diversity (238/440 [54%] said *yes*). The total number of LGBTQ+ policies and resources that were available did not differ significantly (P = 0.12) between veterinary professionals and students.

When asked to indicate how supportive their workplace or school was for LGBTQ+ individuals, veterinary professionals were more likely than students to state that their workplace was very supportive, whereas students were more likely than veterinary professionals to state that their school was supportive. Veterinary professionals and students did not differ in their likelihood of describing their workplace or school as neither supportive nor unsupportive or as unsupportive or very unsupportive (the latter 2 categories were combined for χ^2 analyses).

Finally, when asked how often they were exposed to homophobic remarks or negative remarks about gender expression at work or school, veterinary professionals were more likely than students to indicate

Table 5—Comparison of responses to identity disclosure survey questions for veterinary professionals (n = 245) and veterinary students (195) in Table 1.

Variable	No. of respondents	Professionals	Students	*P* value
Knew of other employees or students who were openly LGBTQ+	440			< 0.001*
Yes		163 (66.5)[a]	175 (89.7)[b]	
No		70 (28.6)[a]	13 (6.7)[b]	
Missing response		12 (4.9)[a]	7 (3.6)[a]	
Individuals at work or school to which sexual orientation was disclosed†	437			< 0.001*
No one		17 (7.0)[a]	34 (17.6)[b]	
Some people		33 (13.5)[a]	80 (41.5)[b]	
Most people		43 (17.6)[a]	52 (26.9)[b]	
Everyone		139 (57.0)[a]	20 (10.4)[b]	
Missing response		12 (4.9)[a]	7 (3.6)[a]	
Individuals at work or school to which gender identity was disclosed‡	29			0.36‖
No one		6 (42.9)	4 (26.7)	
Some people		6 (42.9)	7 (46.7)	
Most people		0 (0)	1 (6.7)	
Everyone		1 (7.1)	1 (6.7)	
Missing response		1 (7.1)	2 (13.3)	
Fear of Disclosure Scale score				
Sexual orientation§	278	1.97 ± 1.23	2.20 ± 1.10	0.16
Gender identity¶	27	3.64 ± 2.12	3.02 ± 1.48	0.50
Outness Inventory				
Sexual orientation: family†	437	6.44 ± 1.93	4.60 ± 2.47	< 0.001*
Gender identity: family‡	29	4.02 ± 3.04	2.40 ± 1.95	0.12
Sexual orientation: world†	437	5.84 ± 1.80	3.84 ± 1.92	< 0.001*
Gender identity: world‡	29	2.73 ± 2.02	2.96 ± 1.76	0.76

Data are given as number (%) of respondents or as mean ± SD.

*Statistically significant after accounting for type I error with the linear step-up approach.[48] †Only asked of nonheterosexual respondents. ‡Only asked of transgender or nonbinary respondents. §Only asked of nonheterosexual respondents who indicated that they were not open about their sexual orientation to everyone at work or school. ¶Only asked of transgender and nonbinary respondents who indicated that they were not open about their gender identity to everyone at work or school. ‖Because expected responses for some cells were < 5, all responses other than *no one* were combined for χ^2 analysis.

[a,b]Values in a row with different superscript letters were significantly (P < 0.05) different, as determined by the use of z tests between groups with a Bonferroni correction.

that they never heard homophobic language or negative remarks about gender expression, whereas students were more likely to indicate that they were exposed to this language occasionally. Otherwise, there were no significant differences between groups.

Identity disclosure

Students (175/195 [89.7%]) were more likely than veterinary professionals (163/245 [66.5%]) to indicate that they knew at least 1 other individual in their school or workplace who was openly LGBTQ+ **(Table 5)**. Among the 175 students who reported knowing at least 1 other person at their veterinary school who identified as LGBTQ+, 170 (97%) reported knowing at least 1 LGBTQ+ student, 82 (47%) reported knowing at least 1 LGBTQ+ faculty member, 52 (30%) reported knowing at least 1 LGBTQ+ staff member, 10 (6%) reported knowing at least 1 LGBTQ+ internship or externship supervisor, and 3 (2%) indicated *other* (eg, a fellow intern at a teaching hospital). Among the 163 professionals who reported knowing at least 1 other employee who was openly LGBTQ+, 119 (73%) reported knowing at least 1 LGBTQ+ peer, 110 (67%) reported knowing at least 1 LGBTQ+ supervisee or employee, 58 (36%) reported knowing at least 1 LGBTQ+ work supervisor, and 14 (9%) indicated *other* (eg, a practice owner or student).

When respondents were asked about the extent to which they had disclosed their own LGBTQ+ identities in the workplace or at school, veterinary professionals were more open about their sexual orientation, compared with students. Specifically, they were significantly less likely to indicate that they had disclosed to no one and substantially more likely to indicate they had disclosed to everyone, compared with students. In contrast, veterinary professionals and students were equally unlikely to disclose their gender identity; however, the small sample size yielded limited power for comparisons related to gender identity disclosure.

Respondents who were not open about their sexual orientation or gender identity were asked to complete the Fear of Disclosure Scale to assess perceived consequences if they were to disclose their LGBTQ+ identities. There were no significant differences between veterinary professionals and students on the perceived consequences of disclosure of either sexual orientation or gender identity.

Veterinary professionals had higher scores for general openness about their sexual orientation to

Table 6—Results of linear regression analysis of whether workplace and school climate variables or identity disclosure variables were significantly associated with psychological distress, work- and school-related stress, surface acting, and deep acting scores for respondents in Table 1.

	Psychological distress score (continuous)		Work- and school-related stress score		Surface acting score		Deep acting score	
Predictor	**No.**	***P* value**	**No.**	***P* value**	**No.**	***P* value**	**No.**	***P* value**
Experienced difficulties related to sexual orientation or gender identity in school or professional settings	440	0.01*	377	0.04	440	< 0.01*	440	0.03
Total No. of LGBTQ+ policies and resources	440	< 0.01*	377	0.03	440	< 0.01*	440	0.29
How unsupportive workplace or school is of LGBTQ+ employees and students	399	< 0.01*	377	0.01*	399	< 0.01*	399	0.54
How often exposed to homophobic remarks at work or school	399	< 0.01*	377	0.06	399	< 0.01*	399	< 0.01*
How often exposed to negative remarks about gender expression at work or school	399	< 0.01*	377	< 0.01*	399	< 0.01*	399	< 0.01*
Know of other employees or students who were openly LGBTQ+	421	0.21	377	0.93	421	0.21	421	0.47
Disclosed sexual orientation at work or school†	418	0.20	375	0.52	418	0.99	418	0.91
Outness Inventory (sexual orientation): family†	397	< 0.01*	375	0.14	397	0.01*	397	0.07
Outness Inventory (sexual orientation): world†	396	0.05	375	0.62	396	0.36	396	0.90
Fear of Disclosure Scale (sexual orientation)‡	242	< 0.01*	225	< 0.01*	242	< 0.01*	242	0.05
Disclosed gender identity at work or school§	26	0.72	23	0.12	26	0.14	26	0.13
Outness Inventory (gender identity): family§	—	—	23	0.18	—	—	—	—
Professional-versus-student X Outness Inventory (gender identity): family§	24	< 0.01*	—	—	24	< 0.01*	24	< 0.01*
Outness Inventory (gender identity): world§	24	0.36	23	0.34	24	0.61	24	0.45
Fear of Disclosure Scale (gender identity)‖	22	0.39	21	0.30	22	0.58	22	0.96

In all regression models, dummy variables were used to control for gender identity and whether respondents were veterinary professionals or students.

*Statistically significant after accounting for type I error with the linear step-up approach.[48] †Only asked of nonheterosexual respondents. ‡Only asked of nonheterosexual respondents who indicated that they were not open about their sexual orientation to everyone at work or school. §Only asked of transgender or nonbinary respondents; gender identity was not included in the regression model. ‖Only asked of transgender and nonbinary respondents who indicated that they were not open about their gender identity to everyone at work or school; gender identity was not included in the regression model.

— = Analysis was not reported. For main effects, analyses were not reported when there was a statistically significant interaction. For interactions, analyses were not reported when the interaction was not statistically significant.

their family and to the world, compared with students. In contrast, there were no significant differences between veterinary professionals and students regarding general openness about gender identity to their family or to the world. However, results should be viewed with caution given the small sample size.

Work- and school-related emotional outcomes

Regression analysis of whether workplace and school climate or identity disclosure variables were significantly associated with psychological distress, work- and school-related stress, surface acting, and deep acting scores found that professional-versus-student status generally did not modify the relationship between variables **(Table 6)**. Only 1 variable had significant relationships for all 4 examined outcomes. Specifically, how often respondents were exposed to negative remarks about gender expression was associated with psychological distress, work- and school-related stress, surface acting, and deep acting scores. Two other variables were associated with all outcomes except deep acting score. Specifically, how supportive the workplace or school was of LGBTQ+ identities and the Fear of Disclosure Scale score for sexual orientation were both associated with psychological distress, work- and school-related stress, and surface acting scores. How often respondents were exposed to homophobic remarks was associated with psychological distress, surface acting, and deep acting scores, and 3 variables (ie, whether respondents had experienced difficulties related to their sexual orientation or gender identity in the workplace or at school, total number of LGBTQ+ policies and resources [negative association], and outness about sexual orientation to family [negative association]) were associated with psychological distress and surface acting scores. Finally, variables that were not significantly associated with any of the 4 outcomes included whether respondents knew of other employees or students who were openly LGBTQ+ and most variables related to identity disclosure.

For 3 regression models, professional-versus-student status moderated the results, and all 3 involved outness about gender identity to family members. First, for students, there was not a significant relationship between outness to family members and psychological distress scores ($\beta = 0.34$; $P = 0.12$) but for veterinary professionals, greater outness to family members was associated with lower psychological distress scores ($\beta = -0.47$; $P = 0.01$). Second, for students, there was not a significant relationship between outness to family members and surface acting scores ($\beta = 0.37$; $P = 0.05$), but for veterinary professionals, greater outness to family members was associated with lower surface acting scores ($\beta = -0.56$; $P < 0.01$). Third, for students, greater outness to family members was associated with higher deep acting scores ($\beta = 0.50$; $P < 0.01$), but for veterinary professionals, there was not a significant relationship between outness to family members and deep acting scores ($\beta = -0.24$; $P = 0.19$).

Emotional exhaustion and job satisfaction, which were assessed only in veterinary professionals, were significantly associated with several variables **(Table 7)**. Specifically, experiencing workplace difficulties related to LGBTQ+ status, lack of supportiveness of the workplace, frequency of exposure to homophobic remarks, and frequency of exposure to negative remarks about gender expression were all positively associated with emotional exhaustion scores and negatively associated with job satisfaction scores. Additionally, the total number of LGBTQ+ policies or resources and disclosure of gender identity at work were negatively associated with emotional exhaustion scores and positively associated with job satisfaction scores. Outness about sexual orientation and gender identity to family and outness about gender

Table 7—Results of linear regression analysis of whether workplace climate variables or identity disclosure variables were significantly associated with emotional exhaustion or job satisfaction scores for veterinary professionals in Table 1.

	Emotional exhaustion		Job satisfaction	
Predictor	**No.**	***P* value**	**No.**	***P* value**
Experienced difficulties related to your sexual orientation or gender identity in professional settings	245	< 0.01*	245	< 0.01*
Total No. of LGBTQ+ policies and resources	245	< 0.01*	245	< 0.01*
How unsupportive workplace is of LGBTQ+ employees	225	< 0.01*	225	< 0.01*
How often exposed to homophobic remarks at work	225	< 0.01*	225	0.01*
How often exposed to negative remarks about gender expression at work	225	< 0.01*	225	0.02*
Know of other employees who were openly LGBTQ+	233	< 0.05	233	0.21
Disclosed sexual orientation at work†	232	0.17	232	0.73
Outness Inventory (sexual orientation): family†	224	0.01*	224	0.20
Outness Inventory (sexual orientation): world†	223	0.28	223	0.42
Fear of Disclosure Scale (sexual orientation)‡	88	0.07	88	0.01*
Disclosed gender identity at work§	13	< 0.01*	13	< 0.01*
Outness Inventory (gender identity): family§	11	< 0.01*	11	< 0.05
Outness Inventory (gender identity): world§	11	0.02*	11	< 0.05
Fear of Disclosure Scale (gender identity)‖	10	0.19	10	0.16

Unless otherwise specified, a dummy variable was used to control for gender identity in all regression models.
See Table 6 for key.

identity to the world were associated with emotional exhaustion, but not job satisfaction, scores, and fear of disclosure of sexual orientation was associated with job satisfaction, but not emotional exhaustion, scores. Finally, knowing other LGBTQ+ employees, disclosure of sexual orientation at work, outness about sexual orientation to the world, and fear of disclosure of gender identity were not associated with either outcome variable.

Discussion

To our knowledge, the present study represented the most comprehensive study to date examining the experiences of LGBTQ+ veterinary professionals and students. First, as expected, we found that LGBTQ+ veterinary professionals and students were more likely to have a history of suicidal ideation and a history of suicide attempts than did veterinarians in general, as reported by Nett et al.[1] Notably, Nett et al[1] found that veterinarians in general were more likely to have a history of suicidal ideation than did the general US population. Differences between LGBTQ+ respondents in the present study and veterinarians in general reported in that studyl[1] were more nuanced with regard to serious psychological distress and previous depressive episodes. Overall, however, our results suggested that there was an elevated likelihood of negative mental health outcomes among LGBTQ+ veterinary professionals and students, compared with the likelihood for veterinarians in general, and that within the LGBTQ+ population, transgender and nonbinary individuals were at the greatest risk and nonheterosexual cis men were at the lowest risk. These findings were consistent with other research suggesting an increased likelihood of suicidal behavior and psychopathology among sexual minorities[49,50] and, in particular, among transgender and nonbinary individuals, even compared with cisgender gay, lesbian, and bisexual individuals.[51]

Our second objective in the present study was to compare the experiences of LGBTQ+ veterinary professionals with those of veterinary students. Although professionals were more likely than students to have experienced difficulties related to their LGBTQ+ identities at some point during their lives, they rated their current workplaces as more supportive and were less frequently exposed to homophobic and transphobic language. Additionally, professionals were more likely than students to be open about their sexual orientation at work or school, to their families, and to the world at large. These findings suggested that professionals may have more flexibility in identifying and choosing supportive workplaces, compared with students, who have limited options for institutions at which they can complete their training. It is also possible that professionals have more time to engage in the disclosure process in their work environments than students, who typically complete their schooling within 4 years and are generally younger than professionals. On the other hand, students were more likely than professionals to have access to or be aware of LGBTQ+ resources and support groups and to have LGBTQ+ issues incorporated into formal diversity training. Additionally, students were more likely than professionals to know someone else at school or work who identified as LGBTQ+. Overall, therefore, our results suggested that students may have had more concrete or formalized resources at their disposal and may have been less isolated from other LGBTQ+ individuals, but this did not necessarily translate into a perception of supportiveness. It is also possible that some of the differences between professionals and students may be attributable to generational or cohort differences, rather than being specific to their respective environments.

Notably, transgender and nonbinary professionals and students were equally unlikely to disclose their gender identity at work or school. In fact, of the 32 transgender and nonbinary individuals in our study, only 2 reported being out to everyone at work or school regarding their gender identity. Moreover, although professionals and students did not differ from one another in Fear of Disclosure scores for sexual orientation and gender identity, Fear of Disclosure scores for gender identity were higher than scores for sexual orientation. This was consistent with previous research[52] showing that transgender undergraduate students are less likely to be out about their gender identity than nonheterosexual cis women are to be out about their sexual orientation and that transgender students tend to have more negative perceptions of campus climate than do cisgender lesbian, gay, and bisexual students. Our overall pattern of results suggested that transgender and nonbinary individuals may be the most vulnerable among LGBTQ+ veterinary professionals and students. However, these results should be viewed with caution given the relatively small number of individuals with this identity and that the transgender and nonbinary individuals in our study represented a variety of gender identities and thus may differ in their needs and experiences.

Our third objective in the present study was to examine relationships between climate and identity disclosure variables and various outcomes (ie, psychological distress, work- and school-related stress, emotional labor, emotional exhaustion, and job satisfaction). Overall, significant variables had a similar relationship with the outcome variables for professionals and students (ie, professional-versus-student status did not serve as a moderator), with 3 exceptions. Unexpectedly, 2 variables were not associated with any of the outcomes we examined: knowing other employees or students who were openly LGBTQ+ and disclosure of sexual orientation at work or school. Restriction of range (ie, the limited variability in response patterns) may explain why knowing other LGBTQ+ individuals at work or school was not predictive of any mental health outcome, given that most professionals and students reported knowing at least 1 other openly LGBTQ+ individual. Another explanation is that simply knowing another LGBTQ+ in-

dividual does not equate to a sense of community and does not necessarily translate into an open or welcoming environment in general. Disclosure of sexual orientation at work or school, although not significantly correlated with the mental health outcomes we examined, was negatively correlated with supportiveness of the work or school environment, which itself was associated with nearly all of the outcomes we examined. This suggested that increasing the supportiveness of the environment for LGBTQ+ individuals may lay the groundwork for more openness about their identities and may lead to less psychological distress, stress, emotional labor, and emotional exhaustion and greater job satisfaction. Consistent with the idea that more supportive environments lend themselves toward greater disclosure, at least 1 experimental vignette study[53] has demonstrated that nonheterosexual participants were substantially more likely to disclose their sexual orientation in the workplace if they anticipated positive support in that context. Likewise, a recent meta-analysis[26] has shown a correlation between supportiveness of workplace environments and degree of LGBTQ+ identity disclosure. Our findings converged with this previous research, suggesting that the focus of action should be enhancing the environment to lay the groundwork for both identity disclosure and other positive outcomes. It is also important to keep in mind that LGBTQ+ identity disclosure is not a onetime process and is something that LGBTQ+ veterinary professionals and students will encounter repeatedly throughout their careers as they encounter new colleagues and workspaces. To the extent that various environments assume a heterosexual, cisgender identity unless explicitly told otherwise, the act of disclosing one's identity can be fraught with anxiety, no matter whether it is one's 1st or 50th time doing so. Accordingly, 1 simple, positive step that the veterinary community can make is reducing the degree to which heteronormative and cis-normative assumptions are made regarding new colleagues, students, and staff. This can, for example, be as simple as asking new colleagues whether they have a partner rather than whether they have a wife. Additional suggestions can be found in a recently published guide for improving the workplace climate for LGBTQ+ health-care workers.[54]

Related to unsupportiveness of the environment, the frequency with which respondents to our survey were exposed to homophobic language and negative remarks about gender expression was associated with nearly all of our outcome variables. Our findings were similar to those of a recent study[55] of LGBTQ+ college students, which found that experience with microaggressions (ie, "everyday verbal, nonverbal, and environmental slights, snubs, or insults, whether intentional or unintentional, that communicate hostile, derogatory, or negative messages to target persons based solely upon their marginalized group membership"[56]) was associated with depression for both cisgender and transgender and nonbinary students. In contrast, the total number of LGBTQ+ policies and resources at work or school was less consistently associated with outcome variables in the present study. This pattern was consistent with the finding that the more informal culture of a professional environment has a bigger impact on LGBTQ+ well-being than formal policies.[26] Accordingly, both top-down (ie, institution-led) and bottom-up (ie, student- or employee-led) processes must take place to improve the culture in veterinary workplaces and schools.

As mentioned previously, for 3 regression models in the present study, professional-versus-student status moderated the findings. All 3 models involved outness about gender identity to family members, which was differentially related to psychological distress, surface acting, and deep acting scores for professionals versus students. Professionals who were more out about their gender identity to family members experienced less psychological distress and engaged in less surface acting in the workplace, whereas outness about gender identity to family members made little difference for students' psychological distress and surface acting scores. With deep acting scores, a different pattern emerged, such that openness about gender identity to family members had no relationship to deep acting scores for professionals but was positively associated with deep acting scores for students. In contrast, professional-versus-student status did not moderate the relationship between outness about sexual orientation to family members and any of our outcome variables. Given the small sample size for regression analyses involving gender identity (n = 24) and the inconsistent pattern across surface acting and deep acting scores, these results should be viewed with caution unless they are replicated.

Although our study had a number of strengths, there were some important limitations to consider. First, our sample was not randomly selected. Therefore, it is unclear how representative our prevalence rates are of prevalence rates for the LGBTQ+ veterinary community at large. It is possible that LGBTQ+ veterinary professionals and students who were experiencing greater levels of distress may have been more motivated to participate in our survey and that, as a result, our prevalence rates were overestimates. On the other hand, given that we recruited from LGBTQ+ veterinary organizations, our participants might have been higher functioning than the LGBTQ+ community at large, given that they received support and connection through these organizations. On that note, there were 16 states from which we did not receive any responses, particularly in the Mountain West and Great Plains region (ie, Idaho, Montana, Wyoming, North Dakota, South Dakota, Nebraska, and Iowa) and the Southeast (ie, Arkansas, Louisiana, and Mississippi). This lack of responses may partially reflect the absence of veterinary medical schools in many of these states; however, it also suggests the need for outreach efforts to LGBTQ+ veterinary professionals and students in these areas. A second limitation of our study is that we compared negative mental health outcomes of LGBTQ+ respondents in the pres-

ent study with outcomes for respondents reported by Nett et al,[1] which presumably included at least some LGBTQ+ individuals. However, the proportion of LGBTQ+ respondents in the study by Nett et al[1] was likely small and inclusion of LGBTQ+ individuals in that study would have, if anything, obscured differences between the studies, because the 2 sample populations would have been more similar to one another than if the Nett et al[1] sample population consisted entirely of heterosexual, cisgender participants. Differences between our findings and those of Nett et al,[1] therefore, were unlikely to be attributable to sample composition. A third limitation was that we relied on self-reporting for survey responses, which could have resulted in response bias. However, the study by Nett et al[1] was also subject to this limitation and the same limitation on respondent selection, and we found differences between our findings and those of the previous study[1] on key variables. A fourth limitation was that prevalence estimates obtained in our study and in the study by Nett et al[1] may have depended, at least in part, on how the survey questions were worded. Relatedly, a number of our variables (eg, work- and school-related stress) were single-item measures with unknown psychometric properties that could have been subject to idiosyncratic interpretations by participants (eg, what is meant by trans-inclusive health-care access?). Future research should be conducted to determine whether our findings can be replicated with more comprehensive assessment instruments. Fifth, observed frequencies in the present study for access to LGBTQ+ policies and resources were partially dependent on participant awareness of these policies. Thus, it is unclear whether greater access is needed, greater awareness of available policies and resources is needed, or both. Sixth, we combined several professions into a single group, and veterinarians, veterinary technologists, veterinary technicians, veterinary assistants, and veterinary nurses may have different workplace experiences, especially given the differences in power and status across these professions. Finally, to maximize statistical power, we combined participants from the United States and the United Kingdom in our analyses. Future research should examine whether there are systematic differences in variables across countries as well as across regions of the United States.

Limitations aside, the present study provided a strong foundation for future studies focusing on the well-being of LGBTQ+ veterinary professionals and students. In particular, our findings suggest the need for broader outreach to these populations and for interventions designed to increase the supportiveness of workplace and school-related environments. Existing LGBTQ+ support networks like the Broad Spectrum Veterinary Student Association, Pride VMC, British Veterinary LGBT group, Australian Rainbow Vets and Allies, and QueerVets of Germany have important roles to play in terms of enhancing advocacy, wellness support, and community development for LGBTQ+ veterinary professionals and students, particularly in environments without their own LGBTQ+ initiatives. Although additional efforts are needed, we would like to conclude with some encouraging findings from our study. Seventy-two percent (318/440) of our respondents reported that their workplace or school was supportive or very supportive of LGBTQ+ individuals, 80% (352/440) reported that same-sex partners were welcome at social events, and 77% (338/440) reported knowing at least 1 other LGBTQ+ individual at work or school. Although we hope and expect to see these frequencies approach 100% in the coming years, it is also worth reflecting on how far the veterinary profession has come. Despite current challenges, there is ample cause for optimism.

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Footnotes

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b. Clinical and Translational Science Institute, University of California-San Francisco. Confidence interval for a proportion. Sample size calculators. Available at: www.sample-size.net/confidence-interval-proportion/. Accessed May 2, 2019.
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