AUSTRALIAN VETERINARY JOURNAL
AUSTRALIA'S PREMIER VETERINARY SCIENCE TEXT
EDUCATION, ETHICS & WELFARE

ORIGINAL ARTICLE

Sickness presenteeism associated with influenza-like illness in veterinarians working in New South Wales: Results of a state-wide survey

K Pasfield,[a] T Gottlieb,[b] E Tartari,[c,d,e] MP Ward[a] and A Quain[a]*

Background Sickness presenteeism in the veterinary profession potentially jeopardises the wellbeing of veterinary team members and endangers quality of patient care. In veterinary team members with influenza-like illness (ILI), sickness presenteeism poses a risk to the health and wellbeing of colleagues and clients, particularly in the context of the COVID-19 pandemic. This study aimed to evaluate factors associated with sickness presenteeism in NSW registered veterinarians suffering from ILI, both before and since the beginning of the COVID-19 pandemic.

Methods Veterinarians registered in NSW were invited to complete an anonymous online mixed-methods survey between 31 March 2021 and 31 June 2021, regarding sickness presenteeism and absenteeism associated with ILI. The questionnaire was distributed through online and print newsletters of the Australian Veterinary Association NSW Branch and the NSW Veterinary Practitioners Board.

Results From a total of 122 participants, 81 veterinarians (66.4%) reported that they would attend work despite displaying symptoms of ILI. Most veterinarians would stay at home with a fever alone (n = 108, 88.5%), however, many would still attend work with a sore throat (n = 121, 99.2%) or a dry cough (n = 91, 74.6%). Sickness presenteeism was significantly associated with lack of staff to cover workers. Although sickness presenteeism remained common, participants reported that they were less likely to attend work with symptoms of ILI since the beginning of the COVID-19 pandemic.

Discussion The data are discussed in relation to sickness presenteeism in healthcare workers. These findings underscore an urgent need for relief staff to decrease sickness presenteeism.

Keywords COVID-19; influenza-like illness; sickness absenteeism; sickness presenteeism; vaccination; veterinarian; wellbeing

*Corresponding author.
[a]Sydney School of Veterinary Science, University of Sydney, Camperdown, New South Wales, Australia; anne.quain@sydney.edu.au
[b]Department of Microbiology and Infectious Diseases, Concord Repatriation General Hospital, Sydney, New South Wales, Australia
[c]Infection Control Programme and WHO Collaborating Centre on Patient Safety, Geneva University Hospitals and University of Geneva Faculty of Medicine, Geneva, Switzerland
[d]Institute of Global Health, Faculty of Medicine, University of Geneva, Geneva, Switzerland
[e]Faculty of Health Sciences, University of Malta, Msida, Malta

Abbreviations HCW, healthcare workers; ILI, influenza-like illness

Aust Vet J 2022;100:243–253 doi: 10.1111/avj.13153

Sickness presenteeism describes the behaviour of attending work despite suffering from illness that should result in rest, recovery and, in the case of infectious diseases, isolation.[1, 2] Sickness presenteeism is common across a range of workplaces, and exacerbates the spread of infectious diseases. Those who continue to work despite experiencing symptoms of an infectious disease pose a risk to others, including colleagues and clients who are more vulnerable to diseases.[3]

A systematic review of sickness presenteeism in workplaces and schools found prevalence ranging from 35% to 97%.[3] In the financial year 2009/10, sickness presenteeism was estimated to cost the Australian economy $34.1 billion, with an average of 6.5 working days of productivity per annum lost per employee due to sickness presenteeism.[4] Somewhat surprisingly, given their knowledge about infectious diseases, physicians were at an increased risk of engaging in sickness presenteeism.[3]

In the medical profession, sickness presenteeism has been shown to reduce the wellbeing of healthcare workers (HCW) as well as the quality of care for patients, and lead to compromised patient safety.[5] An international study conducted by Tartari and colleagues, found that 89.2%–99.2% of HCW and 80%–96.5% of nonhealthcare workers would attend work with symptoms of influenza-like illness (ILI).[1] In addition, sickness presenteeism with symptoms of fever was more common among HCW (26.9%) than the general public (16.2%).[1]

Factors contributing to sickness presenteeism include distribution of work tasks within the workplace, job security, disciplinary action, family relationships, job identity in relation to self-image and social dynamic of the workplace.[6,3,7] Risk factors for sickness presenteeism among HCW include personal financial circumstances, physically demanding work, specialised role, long hours, belonging to a profession with high rates of stress and burn out and a feeling of professional and/or moral obligation to continue working despite illness.[7, 8] In addition, stressors placed on HCW are exacerbated by staff shortages, leading to increased rates of sickness presenteeism.[8] Veterinarians share many of the same risk factors for sickness presenteeism of HCW, including a physically demanding job,

specialised role, long hours and high risk of burnout and stress, and high professional and/or moral obligation to continue working when sick.[9] Furthermore, there is a shortage of veterinarians in Australia, which could lead to an increased rate of sickness presenteeism within the workforce.[10]

Despite a recognised need for improved wellbeing of veterinarians,[11] sickness presenteeism has been observed in the profession.[12] According to a survey of 1,300 British veterinarians, 63% of veterinarians worked when they did not feel well enough.[13] Sickness presenteeism was more prevalent among locums (69%) and employees (64%), and was also high in practice partners and self-employed veterinarians (57%). Veterinarians in clinical roles were more likely to engage in sickness presenteeism than those in non-clinical roles (51%).[13] In a survey of 540 veterinary team members from around the world undertaken during the early months of the COVID-19 pandemic, free-text responses revealed that some respondents felt 'torn between the risk of exposure to SARS-CoV-2 and the need to provide a service and/or support colleagues', while others felt that sickness absenteeism would jeopardise employment.[14] These concerns may have been associated with sickness presenteeism during the pandemic.

Understanding the prevalence of sickness presenteeism among veterinarians provides a baseline against which to evaluate preventative strategies. The improvement of worker wellbeing through appropriate sickness absenteeism may improve quality of care and productivity of work.[1] Identifying key factors driving sickness presenteeism may facilitate the reduction of sickness presenteeism among veterinarians. While there has been much discussion of the need to improve the wellbeing of veterinarians,[9, 11, 15] to the authors' knowledge there have been no published studies focused on sickness presenteeism associated with ILI in a veterinary cohort. The aim of this study was to record rates of sickness presenteeism of NSW veterinarians in the previous 24 months and identify risk factors. We hypothesised that (a) sickness presenteeism occurs in veterinarians and; (b) COVID-19 may have reduced sickness presenteeism associated with ILI.

Materials and methods

Survey instrument

A mixed-methods, online survey was administered via Research Electronic Data Capture (REDcap), a University of Sydney hosted, secure server-based application used to build and administer surveys. The online questionnaire (Table S1) was modified from a previous study,[1] and expanded on the basis of a literature review and discussions with veterinarians and physicians. The survey was piloted in hard copy and online with five veterinarians, two registered outside of New South Wales. Feedback that clarified questions or was likely to improve the quality of the data was incorporated into the final version of the survey.

The questions in the survey were divided into eight subsections: (1) demographics, (2) questions based on knowledge of ILI, (3) ILI-related behaviour, (4) attitudes towards people with ILI, (5) willingness to receive vaccination, (6) ILI within the past 2 years, (7) pressures relating to sickness presenteeism and (8) differences in attitudes towards sickness presenteeism; pre- and post-COVID-19. To facilitate comparison with HCW, we used the same questions as Tartari et al.[1] where possible. Sickness presenteeism pertaining to symptoms of ILI was specifically targeted within this study as previous reports identified that these symptoms were a common form of sickness presenteeism within HCW.[3, 16] The questionnaire was designed using dichotomous and closed-ended questions, with the exception of a single open-ended question at the end of the survey: 'Anything else to add?'. For questions related to sickness presenteeism, respondents were able to select a single answer from a drop-down menu. For questions related to symptoms of ILI, respondents were able to select multiple answers.

Recruitment, consent and ethics approval

The survey was open to all veterinarians registered in NSW. Veterinary students and other veterinary team members were excluded, as were respondents from different states or countries, or respondents below the age of 18.

The survey was distributed by the NSW Branch of the Australian Veterinary Association (AVA) and the NSW Veterinary Practitioners Board (NSWVPB) through the publication of the REDcap survey link in 'AVA digest', the NSWVPB website and newsletter *Boardtalk* (June 2021). All veterinarians in NSW are registered with the NSWVPB and many are also members of the AVA. The survey was open from the 31 March 2021 for 3 months, closing on the 31 June 2021. The weblink to our survey remained on the NSWVPBs website for the entire 3 months, and one further reminder to complete the survey was released in May through the AVA electronic newsletter. No incentives were offered to participants or distributors of the survey.

Informed consent was assured by including the participant information statement as the landing page of the survey, and informing respondents that by clicking the 'submit' button, they consented for their survey response to be included in the study. Participants were informed that completion of the survey was voluntary, they could exit at any point prior to submitting the survey and survey responses were anonymous. At the end of the survey, participants were able to provide their email address to receive a short summary of results. These addresses were stored separately to survey responses. The study was approved by the University of Sydney Human Research Ethics Committee (2021/069).

Statistical analysis

Survey data, from REDCap, was downloaded into Microsoft® Excel®. Respondents that had selected 'other' and consequently stated a response that was already included in the options were recategorised in the appropriate category. Only those that were dissimilar from the given options were retained as 'other'. Data were reviewed for valid values before importing into SPSS® Statistics Version 26 (release 26.0.0.0).

All scenarios with multiple 'yes' and 'no' selections were transformed into groups for the purpose of descriptive analysis. Categorical variable responses were compared between veterinarians and HCW (collected in Tartari et al.) using chi-squared tests ($P < 0.05$). Risk factors for sickness presenteeism were determined using binary

logistic regression models. Due to the low number of responses for 'nonbinary' and 'remote–rural zone', these were excluded from gender and geographical location analysis, respectively. The best predictive model of sickness presenteeism was identified with forwards stepwise logistic regression. Confounding by age and gender was considered. The binary responses (yes or no) for influenza and COVID-19 vaccination willingness were used to conduct a multivariable analysis with the predictors; age, gender, occupation, amount of sick leave, number of vets in the practice, geographical distribution or sickness presenteeism.

Thematic analysis of free-text responses was performed as described by Braun and Clarke.[17, 18] Briefly, one author (AQ) familiarised herself with the data by reading all free-text responses multiple times. Using NVivo® 12 Plus software (QSR International), open codes were applied to represent concepts described by respondents. The same response could be coded under multiple themes. Themes and subthemes were actively constructed through an iterative data process analysis. The data were re-coded by two members of the research team (A. Quain and K. Pasfield) to ensure intercoder agreement on themes and subthemes at a minimum level of over 80%.[19] The authors then discussed differences in their coding.

Results

Participant characteristics

A total of 123 participants commenced this survey, of whom 122 participants submitted their response. According to the NSWVPB, there were 4,218 registered veterinarians in NSW when this survey was distributed, resulting in a response rate of 2.9%.

As shown in Table 1, the majority of respondents were female (n = 86, 70.5%), and aged between 30 and 39 years (n = 44, 36.1%). Most worked in metropolitan areas (n = 74, 60.7%) as companion animal practice veterinarians (n = 78, 63.9%). Most participants (n = 36, 29.5%) reported their number of days of paid sick leave at 10–14 days, with 33 participants (27%) unsure of the amount of paid sick leave they were entitled to. The gender of survey respondents was not significantly different from those of HCW.[1] Although both the median and mode categories were identical in HCW and veterinarians (30–49 years), the age of veterinarians responding to this survey was significantly younger than that of HCW (P = 0.035). This is shown in Figure 1.

ILI-related behaviour and sickness presenteeism

Most respondents reported that they would not attend work with a fever alone (n = 108, 88.5%). This was also the most common symptom associated with sickness absenteeism in HCW (73.1%) (Figure 2) as well as the general public (83.8%). Some veterinarians (n = 31–36, 25%–30%) reported that they would remain home with a mild dry cough or muscle aches, while only 6–19 respondents (4%–16%) would remain home with runny nose, cold chills or a pounding headache. Meanwhile, all but one respondent (0.8%) would stay away from work with fatigue, reduced appetite, sinus cold or a sore throat. When asked whether they would attend work with a combination of two or more symptoms, 76 veterinarians (62.3%) indicated that they would remain at home.

When asked for the three symptoms most indicative of influenza, 29 unique combinations were identified, with two combinations representing 66 responses (54.2%) (Figure 3). The most prevalent combination for both HCW and veterinarians included fever, muscle aches and cold chills.

Just over half (n = 65, 53.3%) of veterinarians reported that they would attend work while experiencing mild symptoms of ILI (P value = 0.60). This was comparable with HCW (56.2%).[1] However, only 22 veterinarians (18%) given this same scenario posed as 'should this person go to work' instead of 'would you go to work', responded that the individual should go to work. Similarly, most veterinarians (n = 90, 73.8%) would remain at work during the onset of mild symptoms of ILI (P value = 0.07). This rate was higher than for HCW (64.2%).[1]

Overwhelmingly, veterinarians (n = 90, 73.8%) reported that they would avoid people with symptoms of ILI in social settings. In comparison, HCW avoided individuals displaying symptoms of ILI significantly less (60.2%) in social situations (P value = <0.01). A significant difference was also observed in the professional setting with 82 veterinarians (67.2%) avoiding individuals with symptoms of ILI in the workplace while only 45.8% of HCW reported this response (P value = <0.01). This value decreased to 72 veterinarians (59%) when individuals are wearing a face mask in the workplace. However, HCW still displayed avoidance behaviour significantly less (50.6%) in this scenario (P value = <0.01).

Overall, sickness presenteeism was reported in 81 veterinarians (66.4%) in the past 24-months, with the majority (n = 63, 51.6%) attending work for 1–4 days while displaying symptoms of ILI that would justify staying home sick. Similarly, 82 participants (67.2%) reported that they would return to work with symptoms. There was no significant difference between veterinarians and HCW returning to work while sick (P value = 0.63).

Risk factors relating to sickness presenteeism

Reasons for sickness presenteeism reported by respondents are listed in Table 2. In a univariable analysis (Tables 3 and 4), 'having no one to cover' and geographical distribution were significantly associated with sickness presenteeism. In a multivariable analysis, 'having no-one to cover' was identified as the single significant predictor of attending work while sick (P value = 0.018). Including gender in this model produced no substantial difference in odds ratio for; however, inclusion of age reduced this odds ratio. When adjusted for age, veterinarians were 2.4 times more likely (95% CI 1.018–5.486) to attend work while sick if there is no-one to cover them at work. Gender, amount of sick leave, number of vets in the practice, geographical distribution, occupation, burden on coworkers, duty to patients, absence creating further work, not feeling ill enough, welfare of patients suffering, sick leave used up, leadership supports, financial reasons and colleagues working while sick, were not significantly associated with the odds of attending work while sick. The model fit the data adequately (Hosmer-Lemeshow chi-squared statistic 2.108, P = 0.834; pseudo-R^2 0.152). Importantly, 104 respondents (85.2%) reported that they were less likely to attend work while experiencing symptoms of ILI since the COVID-19 pandemic began.

Willingness to receive vaccination

Most respondents indicated a willingness to receive vaccinations, with 90 respondents (73.8%) either having received or willing to receive the influenza vaccination, and 118 (96.7%) individuals willing to receive a COVID-19 vaccination when the opportunity arose. This was not significantly different from HCW willingness to receive vaccination (81%) ($P > 0.05$). In multivariable analysis of vaccination willingness (yes vs no) and the predictors age, gender, occupation, amount of sick leave, number of vets in the practice, geographical distribution or sickness presenteeism, no significant ($P < 0.05$) associations were found.

Thematic analysis of further comments

Overall, there were 6 themes identified across responses to the question 'Anything else to add?', which was completed by 22 (18%) respondents. The length of these comments ranged from 5 to 144 words. The themes, along with examples, are listed in Table 5.

Discussion

Sickness presenteeism prevalence

Sickness presenteeism was prevalent among veterinarians, with 66.4% (n = 81) of veterinarians in NSW reporting sickness presenteeism in the previous 24 months. This finding is consistent with sickness presenteeism prevalence in helping, health care and teaching professions where job stress is high.[3, 15, 16] Despite 81 participants (66.4%) attending work with symptoms in the past 24 months, when presented with a hypothetical scenario, only 65 veterinarians (53.3%) reported that they would attend work with symptoms of ILI. These findings were similar in HCW, suggesting a pressing need to address sickness presenteeism in these professions.[1] Sickness presenteeism compromises patient safety as well as decreasing productivity of work among HCW.[16, 20, 21] Similarly, sickness presenteeism among veterinarians has the potential to negatively impact veterinarian wellbeing, the quality of patient care and animal welfare.

Sickness presenteeism symptoms

The most common symptom of ILI-associated with sickness absenteeism, in both veterinarians (n = 108, 88.5%) and HCW (73.1%), was fever. This could be due to workplace policies specifying a fever as an appropriate reason for using sick leave, as it may indicate infectious disease, or due to severity of illness associated with fevers. The Australian Government Fair Work Policy states that 'An employee can take paid sick leave when they can't work because of a personal illness or injury'.[22] However, 'cannot work' may be interpreted to mean a total incapacity to work, or may be interpreted to mean inability to perform duties to an expected standard. Webster and colleagues found a common theme among reasons given for sickness presenteeism was that participants felt they had not met the threshold to justify taking sick leave.[3] In addition, having colleagues who continue to work while sick made it more difficult to determine the severity of illness at which employees felt they were unable to work.[23] Mirroring HCW, we found that the more symptoms present, the more likely veterinarians were to take leave due to sickness.[1, 2]

Table 1. Demographics of participants

Demographics	No. (%) of participants (n = 122)
Gender	
Female	86 (70.5)
Male	35 (28.7)
Nonbinary	1 (0.8)
Age	
20–29	21 (17.2)
30–39	44 (36.1)
40–49	21 (18.9)
50–59	21 (17.2)
60–69	13 (10.7)
Geographical location	
Metropolitan area	74 (60.7)
Regional area	47 (38.5)
Remote area	1 (0.8)
Occupation	
Companion animal practice	78 (63.9)
Nongovernment organisation	4 (3.3)
Industry	3 (2.5)
No longer a vet	1 (0.8)
Mixed–ruminant practice	21 (17.2)
Exotic–unusual pet practice	2 (1.6)
Equine practice	3 (2.5)
Practice management	2 (1.6)
Academia–teaching	2 (1.6)
Scientific research–laboratory animals	2 (1.6)
Government	4 (3.3)
Paid sick leave	
0	17 (13.9)
1–4	2 (3.3)
5–9	28 (23)
10–14	35 (29.5)
15+	4 (3.3)
Not sure	33 (27)
Vets currently employed in the practice	
Sole vet	9 (7.4)
2–4	41 (33.6)
5–10	37 (30.3)
10+	35 (28.7)

Multiple symptoms may increase veterinarian confidence that they met the threshold to justify taking sick leave.

Although, prior to the COVID-19 pandemic, the US Centre for Disease Control and Prevention recommended HCW avoid patient care activities until 24 h post cessation of fever or respiratory symptoms, 80% of HCW respondents did not follow this recommendation.[1] Similarly, 90.0% (n = 110) of veterinarians acknowledged that they

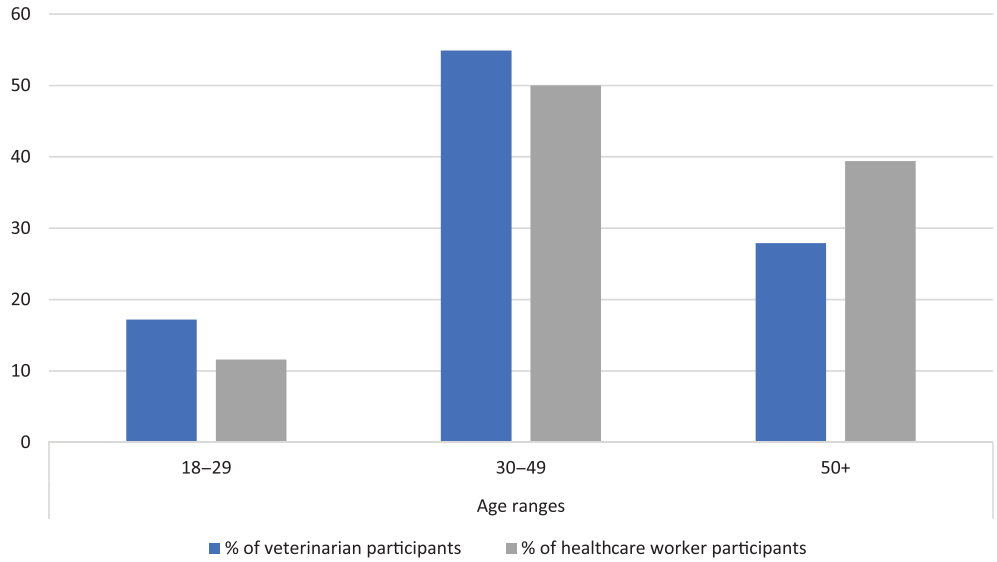

Figure 1. Comparison of ages of healthcare worker and veterinarian respondents to a worldwide and NSW-based survey, respectively.

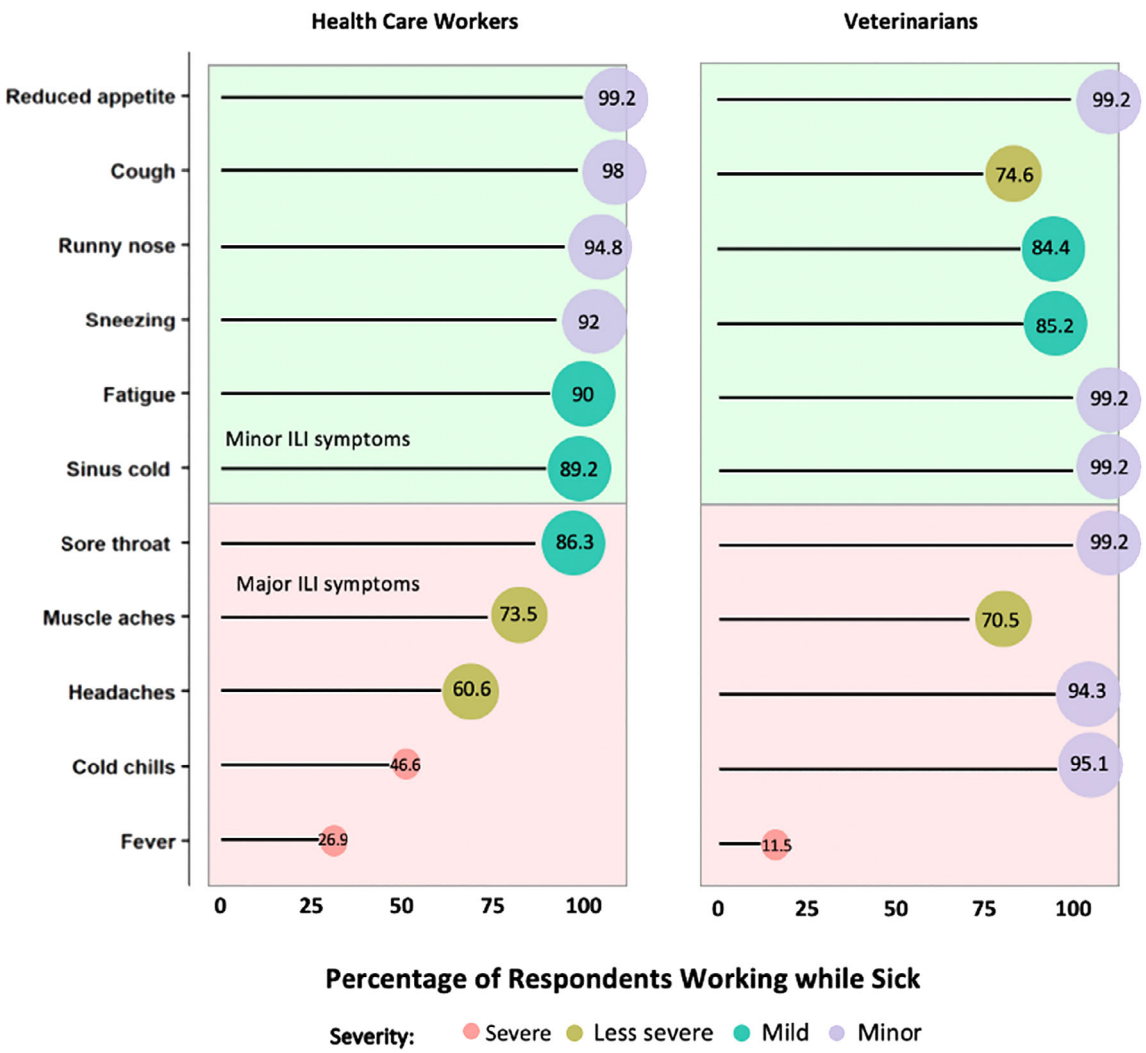

Figure 2. Occurrence of sickness presenteeism due to symptoms of influenza-like illness (ILI) in veterinarians and health care workers (HCW) according to a survey on veterinarians in NSW and a survey of HCW worldwide.

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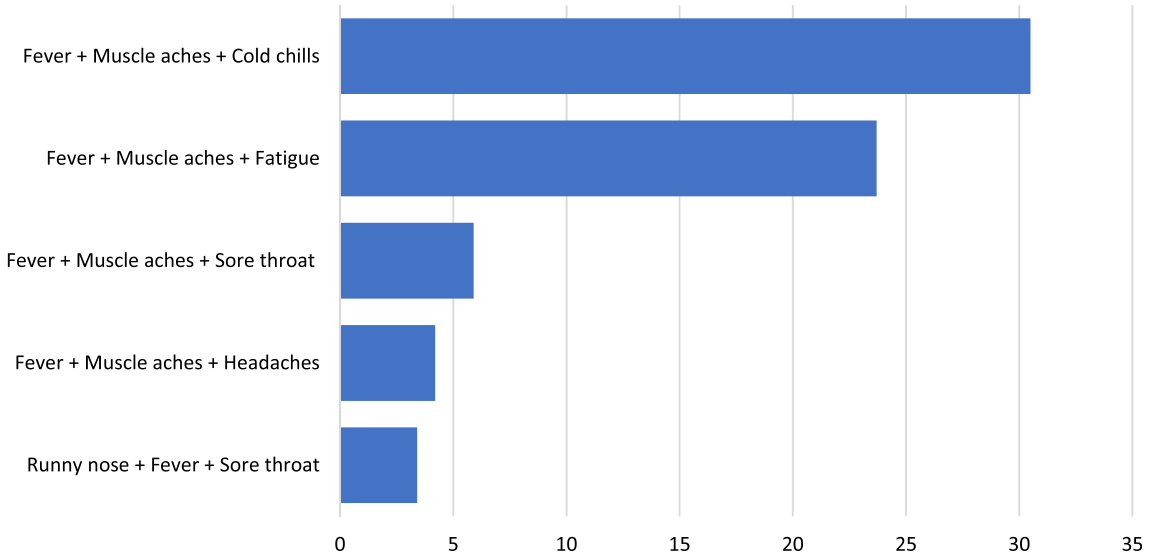

Figure 3. **Symptoms most commonly grouped together by veterinarians in an NSW-based survey, to be considered most representative of influenza-like illness.**

would attend work with a fever and/or respiratory symptoms. Of these, only 11.5% (n = 14) reported that they would attend work with a fever only. While this is lower than the 35% established in HCW prior to COVID-19, it may be explained by increased awareness of risks of spreading infectious diseases in the workplace since the beginning of the COVID-19 pandemic.[24]

In this study, veterinarians were more likely to avoid colleagues displaying symptoms of ILI, in both social and profession environments, than HCW. While it is possible that this result indicates that veterinarians are more aware of infectious disease and biosecurity than HCW, it is more likely that, again, this disparity is due to the timing of our study. As our study commenced 12 months following the declaration of the COVID-19 pandemic, while Tartari et al.'s study occurred prior to this pandemic, our responses are likely biased in favour of avoidance behaviour due to implementation of social distancing and strict personal hygiene protocols. Supporting this, 104 respondents (85.2%) reported that they were more likely to attend work while experiencing symptoms of ILI prior to the COVID-19 outbreak. This is also supported by Steele and colleagues, who noted a shift in the ethos of Australian veterinary practices towards encouraging sickness absenteeism during the pandemic.[25]

Risk factors for sickness presenteeism

Of the eight potential risk factors we explored, the prevailing characteristic impacting sickness presenteeism was 'having no-one to cover'. Individuals that responded with this option were 2.8 times more likely to attend work while sick. This poses a major concern in light of current veterinary shortages.[26]

A study conducted by Superfriend for the AVA reported that 46.7% (n = 2,540) of veterinarians were unable to take sick or annual leave, though the reasons for being 'unable' to take leave were not explored further.[27] Kalijan et al. suggested that the main drivers of sickness presenteeism in young medical professionals were to avoid more work for colleagues, evade negative repercussions or avoid appearing lazy to senior members of staff.[16] In a study of University staff and students, younger age was associated with increased sickness presenteeism in the workplace.[28] In a study of British veterinarians, 18% reported being uncomfortable taking sick leave, a phenomenon observed to be more common among younger vets (25% of those under 35 years old; 19% of those aged 35–54 and 8% of those 55 years and older).[13] In the same study, discomfort about taking sick leave was more common among female veterinarians (21%) compared with males (11%). Although not found in our study, it is important to consider the impact of professional norms and outdated behaviours within the workplace and their impact on young workers. McCrossin stated that in Australia 'the culture of presenteeism – turning up to work while sick – is endemic in medicine and indoctrinated into junior doctors from the beginning of

Table 2. **Reasons for sickness presenteeism reported by veterinarians**

Reason for not taking sick leave when ill	No. (%) of participants (n = 122)
Burden	98 (80.3)
Duty to patients	43 (35.2)
Absence creating future work	47 (38.5)
Do not feel sick enough	35 (28.7)
No one to cover	83 (68)
Cannot afford to miss a shift financially	8 (6.6)
Leadership not supportive	14 (11.5)
Colleagues work while sick	27 (22.1)
Sick leave used up	5 (4.1)
Welfare of patients who suffer	11 (9)
Other	11 (9)

Table 3. Univariable analysis of demographics for sickness presenteeism in veterinarians

Variable	*b*	SE (*b*)	Wald	*df*	Sig.	Exp(B)
Gender	-	-	-	-	-	-
Male	0	-	-	-	-	1.0
Female	−0.431	0.417	1.065	1	0.302	0.650
Age	-	-	9.134	3	0.058	-
60–69	0	-	-	-	-	1.0
50–59	1.099	0.745	2.173	1	0.617	3.000
40–49	0.369	0.737	0.251	1	0.617	1.446
30–39	−0.170	0.690	0.061	1	0.805	0.844
20–29	−0.981	0.866	1.283	1	0.257	0.375
Distribution	-	-	-	-	-	-
Regional area	0	-	-	-	-	1.0
Metropolitan area	−0.921	0.399	5.323	1	0.021	0.398
Occupation	-	-	3.898	2	0.142	-
Nonclinical settings	0	-	-	-	-	1.0
Companion animal veterinarian	−0.87	0.549	0.025	1	0.874	0.917
Large animal veterinarian	0.847	0.636	1.774	1	0.183	2.333
Other clinical settings	0.000	0.976	0.000	1	1.000	1.000
Number of vets employed	-	-	2.910	3	0.406	-
10+	0	-	-	-	-	1.0
5–9	0.482	0.534	0.816	1	0.366	1.620
2–4	0.872	0.512	2.893	1	0.089	2.391
1	0.523	0.814	0.414	1	0.520	1.687
Paid sick leave	-	-	-	-	-	-
Not sure	0	-	-	-	-	1.0
0	−0.445	0.641	0.482	1	0.488	0.641
1–4	−0.668	1.208	0.305	1	0.581	0.513
4–9	0.143	0.522	0.075	1	0.784	1.154
10–14	−0.822	0.536	2.349	1	0.125	0.440
15+	−0.668	1.208	0.305	1	0.581	0.513

Table 4. Univariable analysis of reasons for sickness presenteeism in veterinarians

Reason	*b*	SE (*b*)	Wald	*df*	Sig.
Burden	−0.916	0.465	3.875	1	0.049
Duty to patients	0.146	0.401	0.132	1	0.716
Absence future workload	−0.650	0.397	0.026	1	0.871
Feel sick enough	−0.087	0.429	0.041	1	0.839
No one to cover	−1.031	0.408	6.393	1	0.011
Cannot afford to miss a shift financially	0.222	0.757	0.086	1	0.769
Leadership not supportive	−1.994	1.057	3.561	1	0.059
Colleagues work ill	−0.943	0.539	3.057	1	0.08
Sick leave used up	−0.639	1.135	0.373	1	0.541
Welfare of patients	0.593	0.639	0.861	1	0.353

All reason variables are binary, yes versus no (baseline).

their careers', while Kaldjian et al. noted a similar trend.[16, 29] Our study suggests that this ethos of presenteeism is mirrored in the veterinary profession.[25]

Vaccination

Our findings show that veterinarians, like HCW, are highly willing to be vaccinated against infectious diseases, specifically

influenza and COVID-19.[5] Both HCW and veterinarians show a significantly higher vaccination rate compared to the non-HCW population.[1] This could be because both professions promote vaccination programs to prevent disease and improve patient safety and may have more confidence in the safety of vaccines than the general public. Almost all veterinarian participants (n = 118, 96.7%) were willing to receive a COVID-19 vaccination. Vaccination willingness for the COVID-19 vaccination has also been surveyed in the general Australian population, and was found to be substantially lower, at 85.8%.[30] Recent studies found that COVID-19 vaccination rates were correlated with increased perceived risk of infection and disease severity.[31] In a study of 983 Chinese citizens, having a Batchelor degree or above, and being over the age of 30, were associated with willingness to receive a COVID-19 vaccination.[32] In a survey of 26,324 respondents from Orange County, confidence in vaccination safety, and being a HCW were strongly associated with willingness to receive a COVID-19 vaccination.[33] Vaccine hesitancy has been correlated with being under the age of 60 years old, inadequate health literacy and lower education levels.[30, 34]

Changes in sickness presenteeism related to the COVID-19 pandemic

The first wave of the COVID-19 pandemic in NSW resulted in a small number of cases (around 2,300 total cases to the closing date of our survey).[35] It is possible that strategies aimed at minimising sickness presenteeism, as reported by 104 respondents (85.2%), potentially contributed to reduced viral spread in veterinary workplaces.[35]

Despite increased concerns regarding public health and increased awareness of disease transmission due to the COVID-19 pandemic, almost all participants reported that they would attend work with a sore throat (n = 121, 99.2%), and about three-quarters of participants would attend with a dry cough (n = 91, 74.6%). However, when asked to group three symptoms indicative of influenza, a sore throat was included at a much higher frequency by veterinarians than by HCW.

Van Der Feltz-correlis found that those that presented to work while unwell during the COVID-19 pandemic reported high levels of psychological distress.[28] A study on the frequency and stressfulness of ethically challenging situations encountered by veterinary team members since the beginning of the pandemic identified documented ethical challenges related to sickness presenteeism.[14] Such challenges were related to conflict between personal wellbeing and biosecurity, on one hand, and professional role. In addition, concerns about job insecurity may have been a possible driver for sickness presenteeism among veterinary team members during the pandemic.

As of June 2021, the US Occupational Health and Safety Administration (USOHSA) had received 260 complaints pertaining to COVID-19 protection in the veterinary setting. Of these complaints, 23 related to employers who failed to prevent employees with COVID-19 symptoms displaying sickness presenteeism.[36] In addition, one article reports that of the COVID-19 outbreaks in the US veterinary clinics, each outbreak involved transmission between employees of the practice and, none were associated with client-employee transmission.[37]

Impact of sickness presenteeism

Sickness presenteeism has high professional, physical and psychological costs within professionals.[38] Occupational stressors have been linked to poor mental health in veterinarians[39,40] Feeling unable to take sick leave may negatively impact the health of veterinarians. Berström et al. found that individuals displaying sickness presenteeism in a Swedish workplace were at increased risk of showing poor health.[41]

Implications

Emerging literature has identified the impact that the workplace can make on an employee's attitude toward sickness presenteeism and reducing community spread of disease.[42] Health promotion within organisation can significantly reduce sickness presenteeism.[31] In addition, Homrich et al. correlated decreased sickness presenteeism in workplaces with the health manager's awareness of the risks and harms of sickness presenteeism.[20] Educating employers and managers about the impacts of sickness presenteeism on both the veterinary team and individual team members may similarly reduce sickness presenteeism.

Considering that 33 veterinarians within this study (27%) were unsure of their amount of sick leave per annum, there is a need to address clarity around leave entitlements. It is possible that some respondents engaged in ILI-associated sickness presenteeism as they were not aware they were entitled to sick leave.

High rates of sickness presenteeism within human hospitals are associated with workplace cultures that encourage efficiency and achievement over patient-centred service and safety.[3, 20] Neglect of personal health is promoted by the hidden curriculum of young healthcare workers.[16] Similar factors may be at play in the education and workplace cultures of veterinarians. Veterinary workplaces require a cultural shift towards supporting personnel welfare in order to lower rates of sickness presenteeism.[16] It is crucial to promote a positive work culture and develop appropriate sickness absenteeism policies to optimise employee welfare.[1, 3] The provision of such guidelines portraying formal expectations of disease prevention behaviours may help reduce sickness presenteeism.[43]

Strengths and limitations

This is the first study of ILI-associated sickness presenteeism in veterinarians, and the first study of sickness presenteeism undertaken during the COVID-19 pandemic. Several limitations exist within this research. ILI symptoms were self-reported by participants and may be subject to recall bias. This was impossible to eliminate altogether; however, bias was decreased through use of a specific timeframe, that is, 24 months, and options of specific symptoms.

Our study was based on a study of HCW undertaken prior to the COVID-19 pandemic, but we collected our data after the beginning of the COVID-19 pandemic. It is likely that the pandemic had a profound impact on sickness absenteeism among HCW due to high rates of infection among HCW, and broad recognition of a need to reduce healthcare-associated transmission of COVID-19.[44, 45] It is

Table 5. Thematic analysis for free-text responses

Theme	Frequency	Percentage	Example (s)
Guilt about taking sick leave	7	23%	'In my practice, there is minimal reserve in calling in a nurse if a nurse is sick and almost nil ability to call in a vet. This always leads to increased burden on other staff or feeling bad to having to inconvenience clients to move procedures–appointments who have often taken days off.' 'I feel a LOT of guilt around taking sick leave.'
Comments about COVID-19 vaccination	6	19%	'I am happy to have the [BRAND NAME] vaccine' 'I do not want the [BRAND NAME] vaccine' 'Already had the [BRAND NAME] vaccine'.
Sickness presenteeism pre and post-COVID	6	16%	'Definitely easier to stay home when sick now. As previously was accepted to soldier on. Now being sick is recognised and staying at home is encouraged. I think this is a great improvement in the industry.' 'I agree that we should not be coming to work sick, but prior to COVID-19 I feel the attitude was "suck it up and work through it." I have found now COVID is in our lives I am more likely to stay home when sick, but mostly because the guilt of accidentally spreading COVID outweighs the guilt of burdening my co-workers'.
Managers or leaders not supportive of, or discouraging sick leave.	5	19%	'Both before and since COVID, my employer has made it clear that we are expected to come to work even if sick'. 'Leadership is key to chance. When a partner refuses to go home sick on multiple occasions, it does not reinforce appropriate behaviour or attitudes'.
Comments about the survey	4	13%	'Social distancing is a useful tool, yet not mentioned in survey answer options. "Avoid" is too non-specific to be meaningful'. 'It would be nice to have been able to mention head cold versus influenza, while I have not had influenza i have had a head cold potentially similar symptom. But quite different'.
Strategies to reduce transmission of infectious diseases	3	10%	'Avoiding people – while I think it is impossible I would still wear a mask and practice good hand hygiene'. 'During my period of work (ie except when on annual leave), I do not go anywhere other than work, nor does my partner, we live in an isolated area and ONLY have contact with colleagues'.

possible that the circumstances of the pandemic, and increased awareness of the potential negative impacts of ILI-associated sickness presenteeism, influenced the recall of participants.

As this survey was voluntary, individuals may have been more likely to respond if they had strong views on this topic. Because the survey was anonymous, we were unable to seek additional information and clarification regarding responses. While anonymity may reduce response rates overall, it may serve to reduce or eliminate social desirability bias, where respondents seek to provide answers they feel would be more positively regarded.[46]

The sample size of 122 represents just 2.9% of veterinarians in NSW, so the findings should be interpreted with caution. Survey responses have declined in recent decades.[47, 48] Distribution of this survey during a global pandemic coincided with a marked increase in online surveys as much research moved online, therefore, our survey had to complete with an increased proportion of surveys for participant attention.[46]

It is difficult to compare this response rate to surveys of a similar nature in veterinarians globally or within Australia as many surveys conducted on veterinarians are unable to identify a denominator to calculate a response rate.[35, 49, 50]

This survey recorded a low response rate from rural veterinarians (0.8%). Possible reasons include a higher workload for rural veterinarians in some regions, due to a shortage of veterinarians in rural and remote areas.[51] This shortage of veterinarians has been blamed for increased workloads as well as longer hours for veterinarians working in rural or remote areas.[26] This may have influenced our results.

Conclusion

Sickness presenteeism appears to be common in veterinary practitioners, with 66.4% (n = 81) of participants reporting attending work with symptoms of ILI within the past 24 months. The majority of veterinarian respondents indicated that they were less likely to attend work with symptoms of ILI since the beginning of the COVID-19 pandemic. 'Having no one to cover' was significantly associated with sickness presenteeism. To address sickness presenteeism, veterinary organisations should focus on promoting a

positive working culture, developing clear sick leave policies and addressing staff shortages.

Acknowledgments

The authors acknowledge Dr Kathrin Schemann, from the Sydney Informatics Hub, for advice regarding data analysis, the contribution of the AVA and NSWVPB for their assistance in dissemination of this survey, and anonymous reviewers for their constructive feedback. Open access publishing facilitated by The University of Sydney, as part of the Wiley - The University of Sydney agreement via the Council of Australian University Librarians.

Conflict of interest and sources of funding

The authors declare no conflicts of interest or sources of funding for the work presented here.

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Supporting information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site: http://onlinelibrary.wiley.com/doi/10.1111/avj.13153/suppinfo.

Table S1. Survey questions.

(Accepted for publication 26 January 2022)