Resilience in Veterinary Students and the Predictive Role of Mindfulness and Self-Compassion

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ABSTRACT

Resilience is a dynamic and multifaceted process in which individuals draw on personal and contextual resources. In difficult situations, resilient people use specific strategies to learn from the situation without being overcome by it. As stressors are inherent to veterinary work, including long work hours, ethical dilemmas, and challenging interactions with clients, resilience is an important component of professional quality of life. However, while resilience in other health professionals has received attention, it has received little in the veterinary field. In this cross-sectional study, veterinary students from six veterinary schools in Australia completed an online survey, with 193 responses (23%). Very few veterinary students (6%) reached the threshold to be considered highly resilient using the Brief Resilience Scale, and approximately one third classified as having low levels of resilience. In the final linear multiple regression model, predictors of resilience included nonjudgmental and nonreactive mindfulness (Five Facet Mindfulness Questionnaire) and self-compassion (Neff Self-Compassion Scale). Students with higher nonjudgmental and nonreactive mindfulness and self-compassion had higher resilience scores. These findings indicate that fostering these qualities of mindfulness and self-compassion may be aligned with strengthening veterinary student resilience. Importantly, if the factors that help veterinary students develop a capacity for resilience can be identified, intervention programs can be targeted to educate future veterinary professionals with a high quality of life, both professional and personal.

Key words: resilience, mindfulness, veterinary students, self-compassion

INTRODUCTION

Veterinary medical literature has long recognized the mental health concerns facing veterinary students and new graduates.[1,2] Research has largely focused on cross-sectional studies of veterinary students and graduates; professional commentary on maladaptive outcomes such as depression, anxiety, burnout, and suicide; and speculation on the stressors that lead to such outcomes.[2–4] Long work hours, difficulties managing work and life commitments, ethical dilemmas, challenging interactions with clients, and problems managing personal finances are frequently identified as stressors for veterinarians.[5–7] Veterinary students may also experience academic stressors such as balancing the rigors of the veterinary degree with their other life commitments and managing the transition to clinical or veterinary practice.[8]

In contrast to this focus on professional and academic stressors, the literature on resilience in the veterinary profession is sparse.[9,10] The focus on mental ill-health rather than resilience may be related to the concerning results from formative studies of veterinarian mental health.[2,3] The trend may also be related to the ready accessibility of well-defined and well-validated measures of depression, anxiety, and stress, in contrast to the paucity of similar quantitative measures of resilience. While it is essential that educators understand the challenges, stressors, and mental health problems and their sequelae that may affect veterinarians and veterinary students, we also need to understand the factors associated with the ability to "bounce back" from these in the veterinary profession—in other words, resilience. This insight would illuminate how veterinarians and students manage challenges and stressors in their personal and professional lives. It would also illustrate factors that enable veterinarians to manage their work successfully, derive a strong sense of satisfaction from their career, and maintain commitment and enthusiasm despite experiencing adversity. In turn, such understandings can inform veterinary education and thereby help students build a capacity for resilience in their future careers. Currently, there has been little research that addresses the capacities, characteristics, and processes that help to build and sustain veterinarians and veterinary students in their chosen career.

A focus on resilience in veterinary education is aligned with the increasing focus on resilience in higher education overall,[11] especially in programs preparing graduates for demanding professions where stress and burnout are
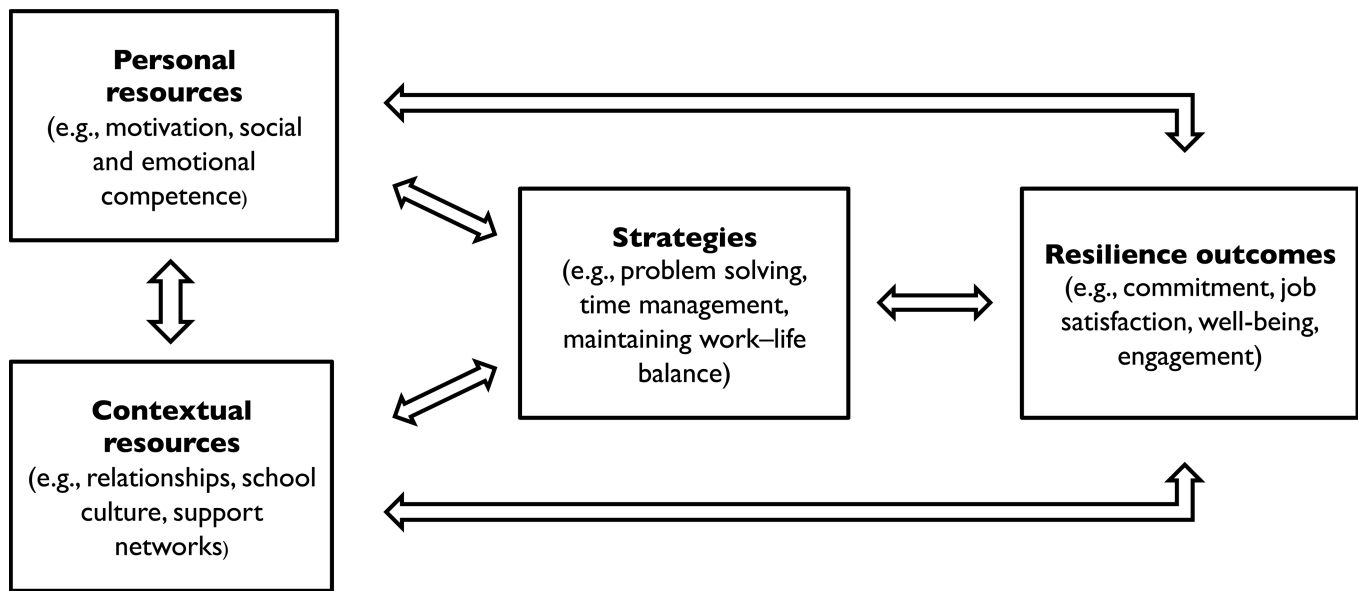
Figure 1: The dynamic and multi-dimensional process of resilience (based on Mansfield, et al., 2012[12])

of concern. A resilience-focused approach has been useful in fostering resilience in "caring" professions such as teaching,[13–15] nursing,[16] medical education,[17] and professions deemed to be emotionally demanding.[18] Educational research in these areas uses a resilience "lens" in an effort to identify protective resources and strategies that influence adaptive professional outcomes leading to positive results. Personal protective resources identified as important include motivation, sense of purpose and vocation, efficacy, support networks, self-compassion, and social and emotional competence, while important strategies include problem solving, maintaining work–life balance, goal setting, reflection, and mindfulness practices. Interventions that support graduates entering emotionally demanding professions have also been developed.[16,19,20] In programs such as nursing and teaching, resilience skills and strategies have recently been embedded in curricula or are the focus of specific additional supports (e.g., https://www.brite.edu.au/). In veterinary medicine, however, resilience-focused approaches have not attracted similar attention, even though degree programs typically devote some time in the curriculum to learning about mental health problems, stress, and their management.[21,22] Many veterinary competency frameworks include components focusing on managing the negative sides of veterinary practice such as mental health problems and the challenges of veterinary medicine.[23–26] A positive, resilience-focused approach may complement these existing approaches by focusing on the resources and strategies that can be mobilized to enable positive adaptation in times of adversity. Using a resilience framework, this article presents an exploratory study to examine the role of mindfulness and self-compassion in enhancing the resilience of veterinary students.

What is Resilience?

Resilience is a complex construct that is yet to be defined in the context of veterinary medical literature. Although the construct was first explored in research with at-risk children (e.g., Masten et al.[27]), in the past 15 years the construct has been applied to other situations, including particular professions where individuals experience adversity. Even though many studies describe resilience, few offer a comprehensive definition of the construct. To inform the current research, we draw on research that has been conducted in the teaching profession,[15,20] where there is an extensive body of literature regarding teacher resilience that is supported empirically and in multiple international contexts.[28,29]

In the absence of a comprehensive conceptualization of veterinary resilience, we propose a working definition, informed by literature from other professions. We consider that resilience is a dynamic and multifaceted process in which individuals draw on personal and contextual resources, and use specific strategies to navigate challenges and to work toward adaptive outcomes (see Figure 1).[30] Development of personal resources (such as motivation, emotional competence, and self-compassion) and learning particular strategies (such as problem solving, help seeking, and mindfulness) can help build the capacity for resilience in professional life.[17,18,31] Capacity to mobilize contextual resources, such as collegial and professional support, is also important.[13,32] Professional outcomes of resilience in the veterinary profession may be evident in sustained commitment, engagement, and career fulfillment.

This definition is also aligned with conceptualizations of resilience as dynamic and temporal,[33] as it involves the process of traversing several stages that include (1)

confronting the event, (2) orienting toward a positive outcome, and (3) enabling adaptive outcomes.[34] Resilience is not simply a personality trait, intrinsic tendency, or learned competency that is acquired and put aside for future use. Instead, it is an active process whereby individuals draw on personal and contextual resources to adapt to changing circumstances.[30] Resilience is developed and strengthened over time and through lived experience.

Resilience is also contextual, meaning that individuals may demonstrate more resilience in some contexts than in others. There is no "one size fits all" resilience model, and attempts at building a universal construct for resilience have identified strong contextual elements that prevent this.[33] The multi-dimensional nature of the resilience construct is highlighted in teacher educational research,[13] where resilience has been associated with professional, emotional, motivational, and social dimensions of teachers' work,[20] thus drawing on the personal and contextual resources that promote adaptation in times of adversity. These findings highlight the importance of developing interventions that build capacity for resilience when designing professional support programs.

Factors Associated with Resilience

A broad range of factors that influence adaptive outcomes and enhance resilience have been identified in the literature.[35] Two key factors that have attracted recent attention are mindfulness and self-compassion, both drawn from Buddhist philosophy.[36] Mindfulness is defined as a conscious and passive, real-time awareness and nonjudgmental acceptance of an experience, including all its emotional, cognitive, and sensory components.[36] More recently, mindfulness has been conceptualized as a multidimensional construct and therefore a valid mindfulness measure should encompass all aforementioned components.[37] Mindfulness has been shown to be associated with lower depression, burnout, and anxiety.[38–40] Importantly, it is a capacity amenable to change with relatively short clinical interventions.[41–45] However, the evidence for the efficacy of mindfulness training on burnout during medical education is mixed.[46]

Self-compassion, a construct more recently garnering attention in the field of positive psychology, is viewed as compassion directed inward and relates to how individuals perceive themselves in times of distress and suffering. Neff defines a self-compassion framework that comprises three interacting elements: (1) self-kindness, (2) common humanity, and (3) mindfulness.[47] These elements all represent intervention targets, and a recent study showed improvements in participants' well-being both at completion of the intervention and after 12 months.[48] Furthermore, higher self-compassion may be associated with lower levels of depression and anxiety[49–51] and decreases in cortisol and heart rate variability.[52] Overall, self-compassion is deemed to be an important explanatory variable in research on mental health and resilience.[53]

Purpose of the Current Study

The veterinary profession has lagged behind other demanding professions such as teaching,[13,54] medicine,[17,55] nursing,[16,56,57] and social work,[58] where developing resilience in the next generation of professionals is becoming a priority. The purpose of this study is to lead this change in approach for the veterinary profession by increasing our understanding of resilience in a veterinary context.

Mindfulness and self-compassion are closely interrelated and have been linked to positive outcomes in professional settings. In the workplace context, mindfulness and self-compassion have been shown to help teachers maintain an optimal classroom environment,[59] and to encourage career success in researchers.[60] In young health professionals, mindfulness and self-compassion are positively associated with both resilience and sleep.[61]

Although resilience is an important component of professional study and work, few empirical studies have investigated the resilience of veterinary students. This study aimed to investigate the capacity for resilience reported by veterinary students and to determine whether it is related to mindfulness and self-compassion. Specifically, the research questions of the study were as follows:

1. What is the extent of resilience reported by veterinary students?
2. Is the extent of resilience reported by veterinary students predicted by mindfulness and self-compassion?

MATERIALS AND METHODS

Procedure

Through administrative staff, students were contacted via social media and email in late July 2015. They were contacted again approximately 2 weeks later in the same fashion. The anonymous, voluntary survey was completed online via SurveyMonkey (www.surveymonkey.com.au). The university with the most participants was awarded $200 to their student union. The study received ethics approval from the Human Research Ethics Committee at the University of Adelaide (Approval number: H-2015–135).

Participants

The target population was determined to encompass approximately 828 Australian veterinary students in their clinical years of study. Any student who had not commenced extramural studies or who did not work in a veterinary clinic was excluded from the study. In total, 255 students began the survey (31% return rate), with 193 usable and complete data sets (23%). Respondents who missed more than two items on a scale were removed from the final data set.

Measures

The survey consisted of demographic details (age and gender) and several validated psychological measures. These included the Brief Resilience Scale,[62] the Five Facet Mindfulness Scale,[37] and the Neff Self-Compassion Scale.[63]

Resilience

The Brief Resilience Scale was used to assess respondents' capacity to "bounce back" and recover from challenging, stressful, or adverse situations.[62] The Brief Resilience Scale is a self-report measure of general resilience that is not

context specific, and that correlates strongly with key health-related measures (physical symptoms, perceived stress, and positive and negative affect) even when other positive characteristics and resources such as optimism, mood clarity, purpose in life, and social support are controlled for.[62] The scale consists of six statements, such as "It is hard for me to snap back when something bad happens" and "I usually come through difficult times with little trouble." Participants rate these on a Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Some of the scores are inversed. Individual item scores are then summed and averaged to give a final score between 1 and 5. The original scale was developed by Smith et al.[62] and the internal consistency was reported as good, with Cronbach's alpha (α) ranging from .80 to .91. More recently the construct validity of the Brief Resilience Scale was demonstrated in a cohort of cancer patients, providing additional evidence for its use as a tool for evaluating resilience-based interventions in the clinical setting.[64] The current study also found good internal consistency for this scale ($\alpha = .88$). Based on the combined sample means of 844 participants that included both healthy and at-risk groups, the Brief Resilience Scale authors proposed an average resilience score of 3.70 for the general population.[34] Using accepted convention regarding the mean (μ) and standard deviation (σ), this means that participants can be classified as "low resilience" if their score falls below 3.00 ($\mu - \sigma$) and "high resilience" if their score is above 4.30 ($\mu + \sigma$).[34]

Mindfulness

The Five Facet Mindfulness Questionnaire is a combination of five separately developed questionnaires, each measuring a different component of mindfulness.[37] These five aspects are observing, acting with awareness, describing, nonjudging of inner experience, and nonreactivity to inner experience. The scale consists of 39 statements that are ranked on a Likert scale from 1 (*never or very rarely true*) to 5 (*very often or always true*). This includes statements such as "I'm good at finding words to describe my feelings" and "When I take a shower or bath, I stay alert to the sensations of water on my body." A score is calculated by inversing some results and calculating the sum of all statements. The final score may therefore range from 39 to 195. A construct validity study found adequate to good internal consistency for this measure, with Cronbach's alpha ranging from .72 to .92.[65] The current study found good to excellent internal reliability for the individual scales: observing mindfulness $\alpha = .80$, describing mindfulness $\alpha = .91$, acting with awareness mindfulness $\alpha = .91$, nonjudgmental mindfulness $\alpha = .91$, and nonreactivity mindfulness $\alpha = .82$.

Self-Compassion

The Neff Self-Compassion Scale consists of 26 statements, which participants rank on a Likert scale from 1 (*almost never*) to 5 (*almost always*). Statement examples include "I try to be loving towards myself when I'm feeling emotional pain" and "When something upsets me I try and keep my emotions in balance." The scale can be divided into six subscales: self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification.

After inversing the scores for certain statements, a grand mean is determined, as well as a mean for each of the subscales. The Neff Self-Compassion Scale author reported excellent internal consistency ($\alpha = .92$),[63] a finding reflected in the current study ($\alpha = .92$).

Data Analysis

All variables were found to be linear and adequately homoscedastic, and they met the assumptions for multicollinearity. Variance Inflation Factor and tolerance values were acceptable. The data were adequately normally distributed following inspection of skew and kurtosis statistics and normal probability plots. Outliers were also examined due to the significant effect they can have on multiple regressions. One outlier was deleted as it had a standardized residual greater than ± 3.3.[66] Cases were excluded listwise when data were missing.

After an examination of bivariate correlations, multiple regression analyses were completed to examine associations between the resilience scale and a model including the Five Facet Mindfulness Questionnaire subscales, age, gender, and the Neff Self-Compassion Scale. Inclusion criteria for the regression analyses were based on the results of the bivariate correlations, with all variables that were correlated with the examined dependent variable and with a *p* value less than .2 included in the regression model.[67]

Gender was coded as a dummy variable (male $= 0$, female $= 1$). Data were analyzed using the Statistical Package for the Social Sciences Version 22.0 for Windows.

RESULTS

Females represented the majority of participants (83%) and the mean age of respondents was 24 years ($M = 24.3$, $SD = 4.09$). See Table 1 for details of descriptive statistics for all study variables. Participants were categorized as experiencing low, average, and high resilience. Notably, over half the respondents reported average resilience scores (60%), 34% reported low resilience, and only 6% reported high resilience.

Table 2 displays the zero-order bivariate correlations between all variables. Table 3 displays the bivariate correlations between the Brief Resilience Scale and the independent variables to show the relative strength of each predictor. Resilience was significantly correlated with acting with awareness mindfulness, nonjudgmental mindfulness, nonreactive mindfulness, observing mindfulness, gender, and self-compassion. Age and describing mindfulness were not correlated with resilience as their *p* values exceeded .2 and thus were not retained for the multiple linear regression analyses.

Following examination of the bivariate correlations, a linear multiple regression using the Enter method was conducted (see Table 4). The total model predicting resilience explained 31% of the variance in scores ($F[6, 161] = 12.147$, $p < .001$) and included observing mindfulness, nonreactive mindfulness, nonjudgmental mindfulness, acting with awareness mindfulness, gender, and self-compassion. Self-compassion ($\beta = .266$, $p < .05$), nonjudgmental mindfulness ($\beta = .169$, $p < .05$), and nonreactive mindfulness ($\beta = .205$, $p < .05$) were significantly associated with

Table 1: Descriptive statistics for study variables

Variable	n	Mean	SD	Range
Age	193	24.36	4.09	18–48
Brief Resilience Scale	188	3.16	.82	1–5
Neff Self-Compassion Scale	178	2.71	.58	1.52–4.25
Acting aware mindfulness	172	23.31	6.32	9–40
Describing mindfulness	172	24.74	6.91	9–40
Observing mindfulness	172	25.65	5.73	10–40
Nonjudgmental mindfulness	172	22.39	6.94	8–40
Nonreactive mindfulness	172	20.34	4.61	7–33

Table 2: Bivariate correlations between all variables

Variable	Neff Self-Comp.	Observing mindful.	Describing mindful.	Acting aware mindful.	Nonjudgmental mindful.	Nonreactive mindful.	Brief Resilience	Gender	Age
Neff Self-Comp.	–								
Observing mindfulness	.209*	–							
Describing mindfulness	.077	.307†	–						
Acting aware mindfulness	.424*	.060	.223†	–					
Nonjudgmental mindfulness	.517*	−.117	.026	.366*	–				
Nonreactive mindfulness	.566*	.314*	.136	.179†	.094	–			
Brief Resilience	.535*	.157†	.045	.264*	.339*	.412*	–		
Gender	−1.390	.079	.069	.020	−.013	−.162†	−.159†	–	
Age	−.036	.039	.140	.010	−.021	−.047	−.015	−.061	–

* Correlation is significant at the .01 level (two-tailed)

† Correlation is significant at the .05 level (two-tailed)

Table 3: Bivariate correlations between explanatory and outcome variables

Explanatory variable	Brief Resilience Scale
Acting with awareness mindfulness	.264†
Nonjudgmental mindfulness	.339‡
Nonreactive mindfulness	.412‡
Observing mindfulness	.157*
Describing mindfulness	.045
Neff Self-Compassion Scale	.535‡
Age	−.015
Gender	−.159*

* $p < .05$

† $p < .01$

‡ $p < .001$

Underlined correlations have $.05 < p < .2$

Table 4: Regression analysis of factors associated with resilience

Explanatory variable	Brief Resilience Scale	
	B	B
Acting with awareness mindfulness	.006	.048
Nonjudgmental mindfulness	.019	.169*
Nonreactive mindfulness	.035	.205*
Observing mindfulness	.008	.061
Neff Self-Compassion Scale	.364	.266*
Gender	−.155	−.074
R^2 (Adjusted R^2)		.312 (.286)

B is the standardized coefficient and B is the unstandardized coefficient.

* $p < .05$

variation in resilience scores. Participants higher in self-compassion, nonjudgmental mindfulness, and nonreactive mindfulness scored higher in resilience.

DISCUSSION

The aim of this study was to establish the extent to which veterinary students reported general resilience (i.e., the ability to bounce back) and to investigate whether self-compassion and mindfulness predict veterinary students' capacity for resilience. Resilience is a complex construct with many definitions including the ability to recover from stress, adapt positively to adverse events, maintain stability during stressful times, and function above normal in the face of stress.[33] These abilities are essential for success when studying and working in a demanding profession such as veterinary science. The idea of "developing capacity" aligns with our working definition, which

frames resilience as a dynamic process whereby individuals develop personal and contextual resources and strategies that they can mobilize to navigate challenges and ultimately achieve adaptive outcomes.

Capacity for Resilience

In this study, the Brief Resilience Scale[62] was used to measure capacity for general resilience in veterinary students. Based on general population means identified by Smith,[34] 33% of veterinary students in this study demonstrated low capacity for resilience and only 6% had a tendency toward high capacity for resilience. Whether this low capacity for resilience is due to an inability to develop personal and contextual resources, an inability to mobilize and apply the right strategies to successfully address challenges faced, or both, this finding highlights the need to increase capacity for resilience in veterinary students to improve their ability to engage successfully in their studies and chosen career following graduation.

Predictors of a Capacity for Resilience

This study investigated possible relationships between mindfulness and self-compassion contributing to resilience in veterinary students. In line with our definition, self-compassion may be viewed as a personal resource and mindfulness as a strategy. Both have potential to enhance resilience. Three predictors of resilience in veterinary students were identified that together accounted for 31% of the factors that contribute to resilience: self-compassion and two facets of mindfulness, namely, nonreactivity and nonjudgement.

Two of the five facets of mindfulness were significant predictors of a capacity for resilience. Nonreactivity involves noticing one's thoughts and feelings without reacting to them, while nonjudging involves accepting one's thoughts and feelings without evaluating them or considering them good or bad.[65] These abilities can be used to navigate the potentially stressful academic or contextual stressors and personal events that occur during the course of a veterinary degree.[21,68] It has been shown that veterinarians[69] and veterinary students,[70] like other high-achiever cohorts, demonstrate trait perfectionism. Furthermore, it is an unfortunate reality that clinicians and students make clinical errors. Strategically adopting a nonreactive and nonjudgmental approach may help to manage the unhelpful self-criticism that accompanies perfectionism, especially after clinical errors, and may have increased the capacity for resilience for respondents in this study. Overall, nonreactivity and nonjudgment may help to manage the potentially deleterious tendency towards perfectionism among veterinary students and veterinarians.

Self-compassion is a newer construct in the literature and has three main facets: taking a caring and gentle approach to oneself when faced with difficult circumstances, seeing these circumstances within the context of experiences that happen to everyone, and being aware of painful thoughts and feelings without identifying with them too closely.[47,63] These are reflected in some of the emotion-focused suggestions for coping with stress offered by Bartram and Gardner[71]: seek emotional support, spend time with pets, reframe the situation in terms of importance and long-term impact, and accept the situation. These suggestions fall under the categories of personal and contextual resources as well as strategies to build resilience.[30,35] For example, support from colleagues is a contextual resource. One benefit of peer support is that it permits individuals to discuss and normalize their experiences, thus reducing isolation. Therefore, implementing peer support as a contextual resource is a self-compassionate act likely to increase the capacity for resilience, and use of this resource by respondents to this study may help to explain the findings.

Moral stress is a noted stressor in veterinary medicine[69] and can lead to painful thoughts and feelings about both the context and the individual. Moral stress occurs when individuals are compelled to act in a manner contrary to their ethical stance, such as objectionable euthanasia. Self-compassion involves not only recognizing those painful personal experiences with a degree of separation, but also adopting a compassionate approach when faced with a moral stressor. Those participants who have developed a self-compassionate capacity (personal resource) that may be used in circumstances of moral stress may have increased their capacity for resilience.

Implications for Educators

The results of this study provide preliminary evidence that veterinary student mindfulness (nonreactivity and nonjudgement) and self-compassion could be viewed as protective resources and strategies in developing veterinary student resilience. Interventions aimed at increasing self-compassion, nonreactivity, and nonjudgement are likely to provide a means of building capacity for resilience in veterinary students. A recent study identified nonjudgment as positively associated with emotional well-being in college students.[72] Recently a mindfulness course was embedded into the curriculum of an international bachelor undergraduate program.[73] Both nonreactivity and nonjudgment facets were significantly increased at program completion and this was sustained at 6 weeks follow-up. Nonreactivity continued to increase significantly from course completion to follow-up. This course was based on a conventional didactic mode of delivery as well as experiential components where students were able to practice meditation techniques in class. Therefore, interventions that train students to normalize what are often interpreted as negative experiences in the profession, such as misdiagnosis, client dissatisfaction, or the death of a terminally ill animal, can assist with eliminating the need for laying blame and ultimately engaging in self-criticism. Although empirical evidence in veterinary medicine is scarce, evidence from medical education literature suggests that students entering the clinical training component of their degree with the greatest need for mindfulness training are the most interested in participating in Mindfulness Based Stress Reduction (MBSR) programs.[74] These results suggest it could be helpful to raise students' awareness that strengthening their ability to enact self-compassion and mindfulness strategies such as nonjudgement and nonreactivity could enhance their

resilience, especially when entering the clinical component of the degree.

While there is growing evidence of the effectiveness of MBSR and Mindfulness Based Cognitive Therapy (MBCT) in settings that share similarities with the veterinary context, it is important to consider the challenges that must be overcome before mindfulness training can become an effective, curriculum-embedded, resilience-building tool. First, it is important to note that the veterinary setting is a unique context[75] and interventions that are relevant will need to be contextualized to increase their efficacy and value. Given that we also conceptualize resilience as contextual, customized interventions may better prepare students for the clinical stressors they will face after graduation. Second, several challenges to implementing mindfulness training successfully have previously been highlighted,[76] including the need for an experiential approach to teaching mindfulness. Mindfulness is not a clearly defined piece of knowledge that can be acquired and retained for future reference. Mindfulness training is an intervention that fundamentally retrains the mind. Any intervention that relies on neural plasticity takes time and requires cyclic reinforcement.

Limitations

The Brief Resilience Scale measures capacity for non-contextual resilience. It may be that veterinary students, in their particular context of the veterinary education setting, are more or perhaps less resilient than the current study depicts. Furthermore, the scale measures the capacity to bounce back from adversity but does not measure the individual's growth from the experience.

The relatively small sample size of the study and low response rate is a limitation of the study. However, the gender distribution approximately represents the veterinary student population. The cross-sectional study design and analysis does not permit discussion of cause and effect. Therefore, further work is required in the form of a longitudinal study to investigate: (1) how the resilience demonstrated by veterinary students alters if interventions are implemented during their veterinary candidature, (2) how the capacity for resilience manifests after graduation when students enter the profession, and (3) what changes occur in resilience over time as the individual's professional and personal context changes.

Future Directions

In developing a construct to define the factors that contribute to resilience, it must be remembered that the resilience process involves a dynamic interplay between person and context and that it develops over time with experience. The role of contexts (profession, life stage, culture) and the affordances and constraints within these influence the resources and processes required for resilience. Despite the dynamic and complex nature of resilience, it is clear that individuals who respond with resilience develop and demonstrate key personal strength attributes and importantly are able to judge the best use of these personal resources to enhance resilience. A context-specific measure of resilience that examines the multifaceted nature of the construct is required for use in veterinary medicine to ultimately enable the development and validation of context-specific interventions.

CONCLUSION

This study is the first to report on levels of general resilience in veterinary students. We have identified low capacity for general resilience in veterinary student participants. However, our data cannot predict how this translates to the changing context of veterinary professional life after graduation. While self-compassion and mindfulness were significant predictors of resilience, they only account for approximately 30% of factors associated with resilience in veterinary students. Therefore further work is required to identify other personal and contextual resources, strategies, and processes that contribute to resilience in veterinarians. Enhancing the resilience of veterinary students and graduates may assist veterinarians to overcome the challenges of their profession and to flourish in their chosen career.

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