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# Understanding Acculturative Stress In Post-Graduate, International Veterinary Students: A Mixed-Methods Study

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UNDERSTANDING ACCULTURATIVE STRESS IN POST-GRADUATE,  
INTERNATIONAL VETERINARY STUDENTS:  
A MIXED-METHODS STUDY

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A DISSERTATION

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In Partial Fulfillment of Requirements

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UNDERSTANDING ACCULTURATIVE STRESS IN POST-GRADUATE,  
INTERNATIONAL VETERINARY STUDENTS: A MIXED-METHODS STUDY

**Abstract**

Thousands of American veterinary students attend fully-accredited international veterinary institutions every year. There are currently 14 veterinary programs located internationally that are fully-accredited by the American Veterinary Medical Association—the same association that accredits American veterinary programs. Although these veterinary students choose to attend these programs, little is known about their experience adapting to the new location and their stressors during their time as veterinary students. With the number of veterinarian suicides rising and the focus on veterinary student mental wellness increasing, gaining a deeper understanding of their experience as students is essential for the future of the profession.

The purpose of this mixed method instrumental case study was to identify the nonacademic factors that contributed to psychological distress in veterinary students who have graduated from geographically isolated veterinary programs. Having already completed years of the program in an isolated location(s) and, in some cases, continuing their education and practice in various locations, these veterinarians experienced both academic and nonacademic stress throughout their veterinary academic career, which may have impacted their physiological well-being. While stress can have both positive and negative effects, it is important for graduates to reflect on their veterinary educational experiences and address their stress levels during the acculturation process. Applying the Acculturation Stress Theory to this study assisted in

understanding the effect this experience had on veterinary students' psychological state and overall well-being.

The quantitative and qualitative survey used in this study, which was comprised of 75 veterinarians who graduated from international veterinary programs produced conflicting data. Overall, these participants scored low levels of acculturation stress in the quantitative data. However, qualitatively, the responses to the open-ended questions described incidences of discrimination and challenges due to geographic location and culture shock. Although these participants expressed high stress levels due to academic and nonacademic stress factors, each participant in this study was satisfied with the decision to pursue veterinary education in a geographically isolated location.

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Doctor of Education

Educational Leadership

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and made me laugh when I needed it most. Midnight runs and memorable experiences throughout this journey make my heart smile and kept me from going crazy at times.

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A special thank you to all the anonymous veterinary professionals who took time out of your busy schedules to contribute your time and feedback to this study. I appreciate it so much and I hope my work provides a bit of insight into your unique experience.



## **DEDICATION**

This study is dedicated to all the veterinary students who step out of their comfort zone to pursue their dreams of being part of the field of veterinary medicine. A special thanks to the class who let me be part of their own journey while they were pursuing their dream. I am so happy I was able to feed y'all and be part of your unique experience. You inspired me to begin this process. I am forever grateful to have been part of yours. And one special thank-you goes to one individual in particular who gave me a front row seat to it all. It is an experience that I will be forever grateful for and will always cherish. I am proud of you and I know you will go on to do amazing things, MJ. I look forward to all of the amazing veterinarians saving the lives of the furry members of our families that we love so much. Thank you for not giving up on your dreams despite the challenges that you may have faced along the way.

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## CHAPTER ONE

### INTRODUCTION

Living in an exotic location while accomplishing a lifelong goal of becoming a veterinarian may sound like a dream come true to the 2,450 American students currently enrolled at AVMA accredited international institutions (American Veterinary Medical Association, 2017). Numerous studies provide evidence that veterinary students endure a rigorous program while obtaining their Doctorate of Veterinary Medicine, citing academic and nonacademic factors, such as workload and financial concerns, as causes of stress in the veterinary students (Collins & Foote, 2005; Drake, McArthur, & Rush, 2014; Girard, & Garlock, 2012; Powers, 2002; Reisbig, Danielson, Wu, Hafen, & Krienert, 2012; Strand, Zaparanick, & Brace, 2005). However, there is a gap in the literature regarding international veterinary students. This mixed method instrumental case study focused on the nonacademic factors experienced by veterinary students who attended international programs located in isolated and developing geographical locations. In addition to the known stressors endured in a veterinary program, these students moved to a new and isolated geographical location with a new and possibly completely unknown and foreign culture. These students were forced to learn and live in a new culture and understand cultural norms in addition to the daily nuances and changes in daily life.

Beginning a new program in this manner brings some level of transitional stress. The isolation of a location alone may add stress to their experience, impacting their overall experience. The location of these sites is especially important because moving to programs situated in isolated locations is known to add transitional stress to the students' experience (Hafen, Ratcliffe, & Rush, 2013). Unanticipated costs such as travel, housing, and living conditions are just a few examples.



It is generally accepted in the field of veterinary medical education that the effect of academic and nonacademic factors on the stress levels in veterinary students remains a topic that needs further emphasis in research (Bakker, Lyons, & Conlon, 2017). Current research has identified stress factors experienced by veterinary students or veterinarians who practice in the United States (Bakker et al., 2017; Drake, Hafen, & Rush, 2017). Drake et al. (2017) documented consistent research findings on a global scale, as New Zealand, the Netherlands, the UK, and Australia have determined the high occurrence of psychological distress among veterinary students (Drake et al., 2017). However, programs that have been studied may be located internationally but they are primarily attended by students that are native to the country or region. The programs used in this mixed method instrumental case study comprised international veterinary graduates from all over the world. There are currently 14 international veterinary programs/schools/universities accredited by the American Association of Veterinary Medical Colleges (American Association of Veterinary Medical Colleges, 2018) and approximately 30,000 veterinary students worldwide at both accredited and nonaccredited veterinary programs (International Veterinary Student Association, 2016). These figures demonstrate the need to learn more about them to understand the situation of these students, and to ensure they are supported in their academic and nonacademic experiences while enrolled in this program.

Veterinary programs are traditionally four years long. However, some international programs have varying curriculum structures (American Veterinary Medical Association, 2018). Furthermore, some of these programs lack clinical cases or an established hospital, so not all four years are completed at the same location. Some programs may last even longer, depending on their location, structure, and requirements (AVMA, 2018). However, expectations of graduating

veterinary students and their clinical skills and learning outcomes of all accredited programs are the same. This means that some of these international veterinary students may have to move and acclimate to new locations during their veterinary academic career, before being able to choose their preferred living arrangement. Transitioning to a program located in an unfamiliar area can create stressors in daily life for these students (Edwards-Joseph & Baker, 2012) and having to move several times in a short period of time can cause even more stress. Potentially, the more stress an already stressed veterinary student encounters, the greater the potential of negative effects on them, their experience, and their academic performance.

Further analysis into the experience of veterinary students identified psychological factors unique to the location of the university and cultural differences the student experiences. Having already completed years of the program in an isolated location, and in some cases continuing their education and practice in several locations, these veterinarians experienced both academic and nonacademic stress. This may contribute to their physiological health (Haarala-Muhonen, Ruohoniemi, Katajavuori, & Lindblom-Yianne, 2011). Although this stress can have both positive and negative effects, it is important that graduates reflect on their veterinary educational experiences and address their stress levels during the acculturation process. Recognizing and understanding their stress can help similar programs create methods to minimize the potential negative effect they have on veterinary students' psychological state and overall well-being. Learning more about the experiences and perceived satisfaction level these participants had while they were students can provide a guide for similar institutions, which would benefit future students and their experience while enrolled in these types of programs, making it a more positive experience.

### **Statement of Problem**

The purpose of this mixed method instrumental case study was to identify the nonacademic factors that contributed to psychological distress in veterinary students who have graduated from geographically isolated veterinary programs. In order to better understand and address psychological symptoms, educators need to examine the perceived perceptions of veterinary graduates concerning their lifestyle and learning environment. Furthermore, understanding the impact of issues such as culture shock on those who are already stressed by their academic obligations may provide insight that will guide educators to employ appropriate psychological practices. Symptoms such as homesickness, relationship stress, loss of support systems, and acculturation are all elements that can have a negative effect on the mental wellness of a veterinary student as well as on their academic success. Armed with this knowledge, faculty and administrators can create and implement methods that will help students learn how to effectively manage non-academic stressors experienced at in these programs. Furthermore, incorporating mental wellness into the existing curriculum can decrease the number of students needing medical treatment, and help those who cannot access medical professionals due to insurance coverage or cost, often cited as a deterrent to psychological treatment (Drake et al., 2017).

Although these international veterinary programs have earned the same accreditation from the American Veterinary Medical Association (AVMA) that stateside schools have earned, the educational experience is different because of the geographically isolated location of the institution. Additionally, the cost of tuition can be a factor to students attending an international veterinary school. The average of total unsubsidized tuition for U.S. students attending an AVMA accredited veterinary school in the US is \$176,759, which is slightly lower than the cost

for a U.S. student attending an international veterinary school, which is \$179,006 (AVMA, 2018). Finances are often cited as a stress factor for U.S. students attending internationally-based AVMA accredited veterinary programs (Ruohoniemi, Mikkonen, Salomaki, Hanninen, Heikkila, & Ryhanen, 2017).

### **Purpose of Study and Significance**

There is robust literature that cites the academic and nonacademic factors that contribute to stress in first-year veterinary students enrolled at universities around the world (Collins & Foote, 2005; Drake et al., 2014; Girard, & Garlock, 2012; Powers, 2002; Reisbig et al., 2012; Strand et al., 2005). Nonacademic factors identified by these authors include homesickness, relationship stress, loss of support system, transitional stress, and acculturation. Poyrazli et al. (2010) found that the acculturation process was less stressful if the student felt safe in the new environment. These students were better able to adapt to a new environment and a new program, most of which was during the first year of veterinary school. In some cases they did this without support systems nearby, such as family, friends, and in some cases, without the help of their significant others. This change can cause transitional stress, which is used to predict psychological effects on veterinary students (Drake et al., 2014). Diulio, Dutta, Gauthier, Witte, Correia, and Angarano (2015) determined that one-third to one-half of first-year veterinary students reported levels of clinical depression because of stress. Similarly, Pickles, Rhind, Miller, Jackson, Allister, Philp, and Mellanby (2012), Sutton (2007), and Drake, Hafen Rush, and Reisbig (2012), found that one-third of first year veterinary students reported being clinically depressed, which is higher than the general population. Strand et al. (2005) and Drake et al. (2017) also concluded that veterinary students experience higher levels of depression and time pressure than the general population.

Drake et al. (2014) identified academic and nonacademic stressors, including homesickness, as contributors to increased levels of anxiety and depression, which can negatively impact a student's academic performance. Additionally, Drake et al. (2014) determined that veterinary students with less satisfying romantic relationships experience more overall stress and poor physical health, a conclusion that Reisbig et al. (2012) also determined. At times, families, as well as partners, are separated while the student attends an international veterinary program. The isolation and distance of international locations can make it difficult and expensive for significant others, as well as any of their offspring, to live in the international setting. Students also noted that the geographical location leads to isolation from support systems, such as counseling, family, and friends according to Pickles et al. (2012). Spielman et al. (2015) determined that peers and family are the main support systems for emotional distress.

With distance as a factor in some cases, relationships could become strained. Reisbig et al., (2012) determined relationship stress as one of four factors that contributed to veterinary student stress: academic stress, transitional stress, family-health stress, and relationship stress. Although most institutions have a counseling center for all students, Pickles et al. (2012) believed that veterinary students may have difficulty accessing their university support system due to the geographical location and the time constraints of a heavy workload. Additionally, there is a negative stigma often attached to receiving medical help for psychological distress and the effect it can have on a future professional career and their pursuit of obtaining a drug license (Drake et al., 2017). This often discourages students who may be experiencing psychological distress to reach out for help.

## **Cultural Factors**

Poyrazli, Thukral, and Duru (2010) define acculturative stress as the adjustment a person goes through to acclimate to a new culture. Acculturation stress also proved to have a negative effect on a student's academic performance (Arends-Tóth & Van de Vijver, 2006; Edwards-Joseph & Baker, 2012). Furthermore, Kegel (2009) stated that 30% of international college students report being homesick, adding that homesickness contributes to a student's stress level, can negatively impact a student's academic performance, and, in extreme cases, may lead to suicide. Additionally, Poyrazli et al. (2010) found that international students encountered more stress than their peers because of culture shock and the need to adapt. It is important to note that culture shock and its symptoms typically do not appear all at once; rather, they are a summation of an accumulation of small events that build up and cause psychological distress (Edwards-Joseph & Baker, 2012).

According to the Association of American Veterinary Medical Colleges (2017), in 2017 there were 2,450 American students who were currently enrolled at AVMA accredited international institutions (AAVMC, 2017). Thomson, Rosenthal, and Russel (2006) found that international students experienced discomfort, dislocation, and distress while studying in a new environment. Homesickness, which leads to cultural stress, was experienced by half of the students enrolled at an Australian university (Thomason et al., 2006) and many also reported feeling segregated or discriminated against, which often result in a negative impact in academic performance and may result in psychosocial consequences (Kegel, 2009; Thomason et al., 2006). However, not all students experiencing transitional stress experience the same symptoms (Haarala-Muhonen et al., 2011).

**Mental Health.** Existing literature tends to focus on stress factors affecting medical students (Hafen, 2011). Studies that do exist regarding veterinary students provide valuable information about the effects of stress and their coping mechanisms (Kogan, McConnell, & Schoenfield-Tacher, 2005; Pickles, et al., 2012). Currently, mental health wellness is a topic that is included in curriculums worldwide because of the high rate of mental instability and suicide among veterinary students and professionals (Collins & Foote, 2005; Gelberg & Gelberg, 2005; Sutton, 2007). Hafen (2011) concluded that veterinary students experience higher levels of depression during their first year of study, when compared to students in human medicine programs. However, Hafen (2011) and Gelberg and Gelberg (2005) noted studies on veterinary students are not as common as studies on medical students when comparing research available specific to these two groups of students. Miller, Mavis, Lloyd, Grabill, Henry, and Patterson (2015) identified similarities in stress factors experienced by veterinary and human medical students, while Bakker et al. (2017) found that when compared to human medical students and general college students, a greater population of veterinary students are considered clinically depressed by the National Institute of Mental Health.

**Gender.** Stress levels and physiological distress of veterinary students are also linked to gender (Kogan et al., 2005). These perceived different experiences regarding mental wellness contingent with gender, specifically biological gender, was particularly discussed and emphasized by Hafen (2011), because 75% of veterinary students are female and medical schools are generally half male and half female. Females are more likely to encounter mental problems (Miller et al., 2015) and experience higher levels of depression when compared to male veterinary students (Bakker et al., 2017). Females are also likely to give themselves higher expectations of performance to feel successful (Pickles et al., 2012). Gelberg and Gelberg (2005)

also determined that women in the veterinary profession are more likely to feel a “role overload” (p. 174) since they are trying to balance work and their personal lives. Hafen (2011) indicated that women are two to three times more likely to have mood disorders when compared to men. In contrast, Collins and Foote (2005) found no significant differences between male and female students and their levels of stress. However, Kogan et al. (2005) determined in their study that women are more stressed as veterinarians than men, which is especially significant since 70% of U.S. veterinary students are female. The number of females in the field of veterinary medicine is still increasing. According to the Association of American Veterinary Medical Colleges (2017), 82.2% of applicants to veterinary schools for the 2016–2017 school year were female, meaning that even more females are pursuing a career in veterinary medicine. Currently, 80.5% of veterinary students at U.S. veterinary schools are female (AAVMC, 2017).

### **Coping Mechanisms**

In an attempt to manage the psychological distress of their rigorous program, veterinary students develop coping mechanisms. Alcohol use is identified as a coping strategy used by the majority of veterinary students and negative consequences have resulted for a significant number of these students (Kogan et al., 2005). Duilio et al. (2015) also noted that 86% of veterinary students are considered to be current drinkers and have experienced negative consequences from drinking. Duilio et al. (2015) categorized a current drinker to be a student that drank about five drinks a week and 53% admitted to having at least one binge episode in the past month.

There are other known coping mechanisms used by veterinary students. Food and drugs were also used to cope with negative situations among veterinary students (Duilio et al., 2015). Collins & Foote (2005) also found that veterinary students used food as a coping mechanism by increasing or decreasing their food intake, which can lead to health and weight problems over



time. More than a third of veterinary students felt that they experienced a health problem due to the demands of their veterinary program (Pickles et al., 2012). Studies conducted specifically on veterinary students all over the world have provided evidence that the occurrence of depression and anxiety ranges from 32% to 69%, which is well above human medical students (23%) and the general population (21.5%) (Drake et al., 2017). Without intervention at the academic level, these numbers will continue to increase.

### **Research Questions**

These questions will be used in guiding this mixed method instrumental case study. They will be used to identify the nonacademic stress factors experienced by graduates from an international veterinary school.

The main research question is:

- How does the process of acculturation after attending an international veterinary program in an isolated location impact the overall academic experience of an international veterinary student?

Other research sub-questions will also be addressed in this study:

- Is there a relationship between demographic variables and levels of acculturative stress with perceived student satisfaction?
- Is there an effect of the levels of acculturative stress on student satisfaction in graduates of these geographically isolated programs?

The researcher has a research hypothesis in addition to these research questions. The researcher believes there is a relationship between demographic variables and levels of acculturation. The results of this study are discussed later in this document.

### **Conceptual Framework**

Ravitch and Riggan (2011) stated that there are three parts of conceptual framework: (1) observation/interest, (2) literature review of research, and (3) application of theory (Ravitch & Riggan, 2011). Using existing research and implementing strategies by applying a theoretical framework provided the guide for research methods, for the process of research design, and for the analyzation process to gain a deeper understanding of a case study (Ravitch & Riggan, 2011). Given the data in existing literature and the purpose of this study, the conceptual framework guided the theory used for analyzation in this study, the Acculturative Stress Theory for International Students. This theory examined the effect of cultural shock on the participants at their international institution as well as their perception of their experience.

### **Assumptions and Limitations**

Any study has limitations that should be noted. Because of the various geographic sites involved in this study, the researcher's own bias, the bounded sample, and the overall goal of the study, this study has several limitations that will be discussed here. The researcher has lived in a geographically isolated location and has had encounters with veterinary students, so the researcher must be aware of this existing bias when analyzing data. Another limitation to this study will be finding a demographically diverse sampling of students. Although the majority of practicing veterinarians are male, the field is quickly becoming female dominated. As of 2017, more than 80% of the veterinary student population was female (AAVMC, 2017). The majority of the existing research conducted has involved veterinary students who are female and Caucasian. Because female students at veterinary schools currently outnumber male students, gender, citizenship, and other demographic information was collected and disclosed to avoid gender generalizations. Additionally, the population of each cohort from each site was varied.

Therefore, the results of the study are specific to the available sample population at the time it was conducted, and the same study conducted in the future may present different results.

Another limitation was the geographical location of this study. The participants were located all over the world and attended a variety of isolated institutions. Further, the participants were practicing veterinary medicine or had continued on to other paths that included additional training for specialty certifications. Data collection was conducted online because of the physical location of the participants. An online survey method was used to collect data responses, which could also be considered a limitation if the participant did not have strong computer skills. Part of the survey included information about their living arrangement while a veterinary student. This was especially important since it may have affected a participant's level of interaction with non-university affiliated personnel, as well as their interaction with locals native to the isolated area. Students who lived off campus were more likely to interact with locals.

Below are the basic assumptions of this study:

- The participants of this study were honest when answering the questions.
- The responses provided by the participants of the study were interpreted accurately.
- The participant must have attended and graduated from a program accredited by same accreditation body that accredits U.S. veterinary schools, as curriculum demands are equivalent to others accredited by the same accreditation body.

### **Definition of Terms**

*Acculturation*: “At the individual level, acculturation refers to changes that an individual experiences as a result of contact with one or more other cultures and of the

participation in the ensuing process of change that one's cultural or ethnic group is undergoing” (Arend-Tóth & Van de Vijver, 2006, p. 3).

*Acculturative Stress:* Acculturative stress is defined in this study as the adjustment a person has to go through to acclimate to a new culture (Poyrazli, Thukral, & Duru, 2010).

*Compassion Fatigue:* Compassion fatigue results from spending many hours in the work environment while striving to put the needs of others before your own. Physical, social, spiritual, and psychological effects are associated symptoms of compassion fatigue (Grossman, 2015).

*Culture Shock:* “Culture shock is the fifth factor, and is comprised of difficulties related to adjustment to new cultural norms and expectations” (Poyrazli et al., 2010, p. 26). Furthermore, this is considered a “psychological concern, characterized by symptoms such as anxiety, depression, sleeping problems, fatigue, irritability, loneliness, forgetfulness, nostalgia, and feelings of not fitting in” (Edwards-Joseph & Baker, 2012, p. 718).

*Stress:* “Multivariate process involving inputs, outputs, and the mediating activities of appraisal and coping” (Lazarus, 1990, p. 5).

## **Conclusion**

Reisbig et al. (2012) stated, “Recent research indicates high rates of depression and anxiety symptoms in veterinary medical students in addition to a high incidence of suicide among veterinarians compared to other health professionals” (p. 341). Furthermore, Reisbig et al. (2012) explained that “impacts of stress in veterinary school may continue to be factors that later contribute to veterinarian suicide” (p. 342). Cardwell et al. (2017) indicated that half of

approximately 2,000 veterinary graduates stated that they did not feel that their work as a veterinarian had met their own professional expectations.

There is no doubt that attending any veterinary program or higher education program brings a certain amount of elevated stress. Existing studies do not take into account the nonacademic stressors that veterinary students experience when starting a new program. Adding studies to the existing literature will help raise awareness of the experiences a veterinary student can encounter and help educators teach them the appropriate ways of coping with stressors associated with similar remote location veterinary school experiences. Examining the difficulties international veterinary students experience when they are adjusting to a new program in a new environment without their support systems readily accessible can help international programs address the psychological needs of these students.

## CHAPTER TWO

### LITERATURE REVIEW

Veterinary students endure a rigorous program before obtaining their Doctorate of Veterinary Medicine. Many elements, both academic and nonacademic, are identified as causes of stress in veterinary students in prior studies (Collins & Foote, 2005; Drake et al., 2014; Powers, 2002; Reisbig et al., 2012; Strand et al., 2005). There is a clear gap in existing literature on international students attending a veterinary program. Studies conducted specifically on veterinary students all over the world have provided evidence that the occurrence of depression and anxiety ranges from 32% to 69%, which is well above that of students of human medicine (23%) and the general population (21.5%) (Drake et al., 2017). Although studies conducted have provided evidence for veterinary programs worldwide, none have included comparable student demographics or geographical location (Collins & Foote, 2005; Drake et al., 2014; Powers, 2002; Reisbig et al., 2012; Strand et al., 2005). Furthermore, there is a deficiency of studies conducted on veterinary students and these are not as common as studies on medical students (Gelberg & Gelberg, 2005; Hafen, 2011).

#### **Veterinary Student Psychological Findings on Stress**

Collins and Foote (2005) defined stress as “a complex of thoughts, emotions, behaviors, and physical symptoms that arises out of the relationships between a person and his or her environment” (p. 170). Stress does not always affect a person or, in this case, a veterinary student or professional negatively. Gelberg and Gelberg (2005) determined that stress can be a motivating factor for some and a debilitating one for others. They also determined that stress is typically triggered by a personal loss, a drastic life or lifestyle change, or existing personality traits. The results of stress can be exhibited in different forms, depending on the person

experiencing it (Gelberg & Gelberg, 2005). Frustration, anxiety, apathy, withdrawal, depression, numbness, and feelings of being overwhelmed or powerless are all examples of different ways stress is expressed (Collins & Foote, 2005). Behavioral changes can also occur as a result of stress. Restlessness, irritability, inability to sleep, substance abuse, dietary changes, lack of communication, and withdrawal are considered behavior signs of stress (Collins & Foote, 2005). Stress can also have physical effects. Headaches, muscle tension, body pain, fatigue, cardiac issues, and gastrointestinal complications are all physical signs of stress (Collins & Foote, 2005).

Drake, McArthur, and Rush (2014) discussed that documentation of psychological distress among veterinary students has been a topic of interest for the past 10 years, noting that it continues into the workplace. Their study named a variety of factors of distress: anxiety, stress, depression, inadequacy, failure, exhaustion, and suicide. Drake et al. (2014) determined that 32% of first year veterinary students at the Kansas State University College of Veterinary Medicine were clinically depressed. Similarly, Pickles (2012), Sutton (2007), and Drake, Hafen, Rush, and Reisbig (2012) found that one-third of first year veterinary students are reportedly clinically depressed, which is higher than the general population. Strand, Zaparanick, and Brace (2005) also concluded that veterinary students have higher levels of depression and time pressure than the general population.

Stress factors such as anxiety, depression, fear of failure, and exhaustion were identified in several studies (Drake et al., 2014; Miller, Mavis, Lloyd, Grabill, Henry, & Patterson, 2015; Duilio et al., 2015; Sutton, 2007; Drake et al., 2012). Pickles et al. (2012) also identified workload and financial debt as stress factors experienced by veterinary students (Collins & Foote, 2005; Drake et al., 2012). Similarly, Kogan, McConnell, and Schoenfield-Tacher (2005) stated that stress factors identified included work, volunteer hours, financial issues, personal

health wellness, and self-reported levels of stress, anxiety, and depression. In contrast, Pickles et al. (2012) discussed a study conducted in a North American veterinary school in which students did not feel high levels of stress even though they reported time pressure and subjective stress. When considering tuition differences between the expenses a U.S. student attending a U.S. AVMA accredited veterinary school versus a U.S. student attending an international AVMA accredited veterinary school, it may help understand why U.S. students attending a North American school did not report the elevated levels of stress. According to the Association of American Veterinary Medical Colleges (2017) the average unsubsidized tuition for U.S. students attending an AVMA accredited veterinary school in the U.S. is \$176,759, which is lower than the cost for a U.S. student attending an international veterinary school, \$179,006.

### **Psychological Findings on Stress in American Veterinary Students**

Studies regarding stress and its impact on veterinary students have been conducted all over the world (Drake et al., 2017). These studies identified the psychological effects that veterinary students experience and their perception of their overall well-being and mental health (Cardwell & Lewis, 2017). Furthermore, these studies also identified the factors that caused stress levels to elevate among veterinary students (Bakker et al., 2017; Drake et al., 2017). Social, financial, academic, and personal factors have all been cited as contributors to psychological distress in veterinary students (Cardwell & Lewis, 2017; Collins & Foote, 2005).

Powers (2002) surveyed 900 first year veterinary students from 14 veterinary schools across the United States, which is approximately 38% of all of the first-year veterinary students entering the U.S. veterinary system, and identified factors contributing to their high levels of stress. Powers (2002) stated that “by surveying a larger sample of veterinary students from a wider variety of schools...information was more reflective of all U.S. veterinary medical



students” (p.227). This study identified stressors stated by the students, naming the three top stressors as lack of time for social/family activities, examinations, and the grading system.

Interestingly, this study determined that veterinary students viewed their experience in a positive way, even though 51% of students felt the coursework was excessive (Powers, 2002).

Miller et al. (2015) determined that there were varying levels of self-esteem throughout a veterinary program. Miller et al. (2015) also determined that students were experiencing a high level of depression and anxiety in the middle of their training. Their study determined that veterinary students’ anxiety and depression levels increased as they progressed in the program. Similarly, Reisbig, et al. (2012) observed the first three semesters for veterinary students from two different veterinary programs located in the Midwest in the United States and found a high percentage of students experiencing rising levels of depression. As noted by previous research, Reisbig et al. (2012) reported veterinary students’ depression levels rising across all three semesters, 49%, 65%, and 69% respectively. With the effects of negative psychological factors increasing as these students progress throughout the program, graduates from veterinary programs leave the program in mental distress.

### **International Veterinary Student Psychological Findings**

Studies involving international veterinary students came to similar findings as the studies involving American veterinary students. Pickles et al. (2012) conducted a study at the Royal (Dick) School of Veterinary Studies and concluded that 9.7% of veterinary students would not go to counseling services fearing that it would not be confidential or simply because of the stigma they believe it carries. Cardwell and Lewis (2017) discussed the fear that occurs in veterinary students when disclosing mental illness information, which discourages them from sharing this information before and during their veterinary medical education. Similarly, the

negative perception of mental illness is also a concern when the UK implemented their peer support program, reported by Spielman et al. (2015). However, Pickles et al. (2012) believe that the findings of their study at The Royal (Dick) Veterinary Studies and the results from a study at the University of Edinburgh are different because students in veterinary programs in North America are older. Reisbig et al. (2012) found that the millennial generation are in constant need of feedback to satisfy their emotional needs. With this generation entering the field of veterinary medical education, it is important to understand their individual needs and expectations.

A study by Collins and Foote (2005) conducted at the University of Sydney involving students enrolled in their veterinary program determined a majority of students were currently experiencing stress from at least one source. Their students identified stress factors as unsatisfactory relationships, financial challenges, excessive workload, and lack of time for recreational events (Collins & Foote, 2005). Similarly, these factors were also identified by first year veterinary students enrolled in a Canadian university (Strand et al., 2005). Likewise, Chigerwe et al. (2014) conducted a study of first and second year veterinary students to assess burnout in veterinary students at the University of California, Davis School of Veterinary Medicine. This study determined that moderate levels of burnout were found in the first and second year veterinary students, which aligned with other studies. Chigerwe et al. (2014) also stated that previous studies determined single females in their second year and married females in their fourth year experienced high levels of burnout, but they were unable to come to the same conclusion due to their sample. Collins and Foote (2005) stated that two-thirds of veterinary students were overwhelmed with the curriculum, while over 70% stated were worried about their academic performance hindering their graduation. Furthermore, one-third of these students felt additional stress by the competitive atmosphere of their veterinary program (Collins & Foote,

2005). Pickles et al. (2012) discussed studies that provided evidence that the type of student who is accepted into a veterinary program must be competitive and high-achieving, which makes it difficult for them to admit to weakness, increasing levels of stress and, ultimately, the need for their support system and/or psychological services.

### **The Role of Gender**

Gender can also play a role in students' perception of their academic experience. Studies provide evidence that gender plays a role in mental instability and the level of overall mental wellness. Young females are more likely to encounter mental health problems (Miller et al., 2015). Females are also likely to give themselves higher expectations of performance to feel successful (Pickles et al., 2012). Gelberg and Gelberg (2005) also determined that women in the veterinary profession are more likely to feel a "role overload" (p. 174) because they are trying to balance work and their personal lives. Hafen (2011) indicated that women are two to three times more likely to have mood disorders when compared to men. In contrast, Collins and Foote (2005) found no significant differences between male and female students and their levels of stress. Kogan et al. (2005) and Duilio et al. (2015) also discussed poor coping mechanisms within the veterinary student population and discussed their experience and its relation to gender. Whitcomb (2010) stated that female veterinarians report higher levels of emotional empathy toward animal welfare, which can make euthanasia and failed medical attempts more difficult for the female veterinarian. However, female students are more likely to discuss their emotional states than men, meaning that men would rather avoid their emotions than cope with them (Archer, Ireland, Amos, Broad, & Currid, 1998). Kogan et al. (2005) determined in their study that women are more stressed as veterinarians than men, which is important because 70% of U.S. veterinary students are female. However, based on their own research, Duilio et al. (2015) stated

men are more likely to binge drink than women. These coping mechanisms are habits that can be carried into the postgraduate lifestyle, affecting their ability to manage stress in their practice.

### **Academic and Non-Academic Stressors**

#### **Compassion Fatigue/Burnout**

Hafen (2011) and Thomas (2012) found that euthanasia specifically affects veterinary students and professionals and leads to increased levels of depression and burnout, as well as compassion fatigue. College student burnout has been associated with suicide ideation (Kogan, et al., 2012). However, Lester (2014) found that high stress levels in a collegiate program is an indicator of previous suicide attempts, meaning if a student has a history of suicidal behavior, the stress of a higher education program is more likely to have a negative impact on their mental wellness. Cardwell et al. (2017) stated that two-thirds of veterinarians who have a history of suicide ideation have considered leaving the field of veterinary medicine but fail to do so because of the unavailability of alternative career options. Euthanasia is identified as a job stressor, especially when the practitioner has developed an emotional connection to the patient (Hansez, Schins, & Rollin, 2008). Furthermore, the attitudes of euthanasia related to the profession is reported as a stress factor that increases the risk of suicide among veterinary professionals (Siqueira et al., 2014). A study in the United Kingdom stated that 93% of veterinarians support euthanasia in humans when confronted by the idea of ending suffering in a living being (Whitcomb, 2010). This may explain the rise of the rate of suicide in the field of veterinary medicine.

Drake et al. (2014) discussed the overall well-being of veterinary students, while Chigerwe et al. (2014) stated that burnout is prevalent among veterinary students, as well as with other professionals. This burnout was also described as “work related stress syndrome” (p. 183)

by Strand et al. (2005). Chigerwe et al. (2014) concluded that the first and second year students experience the highest level of emotional exhaustion, also known as compassion fatigue (Thomas, 2012). Symptoms associated with compassion fatigue can be physical, social, spiritual, and psychological (Grossman, 2015). Anxiety, isolation, sadness, and anger are among the many symptoms of compassion fatigue (Thomas, 2012). Cardwell et al. (2017) also discussed the lack of people skills in veterinarians could be due to their love of animals as being more important than their interactions with humans. Compassion fatigue from the profession can lead to emotional instability and burnout (Cardwell et al., 2017).

### **Homesickness**

Drake et al. (2014) named academic and non-academic stressors, including homesickness. An individual's psychological response to homesickness is similar to grief (Archer et al., 1998). These students may feel a sense of loss and seek acceptance in their current situation, similar to the grief process (Archer et al., 1998). Furthermore, homesickness intensifies when a student does not feel in control of their environment and is separated from the familiarities associated with the home environment (Archer et al., 1998). Powers (2002) identified other stressors that could be attributed to homesickness, which included a lack of time for social/family activities. Strand et al. (2005) and Reisbig et al. (2012) also identified four factors that contributed to veterinary student stress: academic stress, transitional stress, family/health stress, and relationship stress.

Kogan et al. (2005) also focused their study on nonacademic stress factors affecting enrolled U.S. veterinary students and found that veterinary students reported high levels of stress and exhaustion impacted by academic and nonacademic factors. Drake et al. (2014) discussed nonacademic stressors that affected veterinary students, including homesickness, perceived poor

physical health, and romantic relationship satisfaction. Hafen, Ratcliffe, and Rush (2013) also reported similar results in their study, which was based on 240 veterinary students at Kansas State University, primarily Caucasian females. Hafen et al. (2013) discovered that students involved in higher-functioning relationships were reported to have better mental health than those not involved in a relationship. However, these same students felt additional stress from their school workload (Hafen et al., 2013). Furthermore, an unhealthy or low-functioning relationship had a negative impact on the student's well-being and academic performance (Hafen et al., 2013; Reisbig et al., 2012). As a result of this study, Hafen et al. (2013) determined relationship satisfaction to be an important support system crucial to healthy mental health in veterinary students. Drake et al. (2014) also cited research that determined that veterinary students with less satisfying romantic relationships experience more overall stress and poor physical health, a conclusion that resonated with Reisbig et al. (2012). Reisbig et al. (2012) also stated that "recent research indicates high rates of depression and anxiety symptoms in veterinary medical students in addition to a high incidence of suicide among veterinarians compared to other health professionals" (p. 341). Furthermore, Reisbig et al. (2012) explained that "impacts of stress in veterinary school may continue to be factors that later contribute to veterinarian suicide" (p. 342). These authors believe that these factors may be contributing to the increase in the rate of suicide among practicing veterinarians.

### **Culture Shock**

Poyrazli, et al. (2010) conducted a study on the acculturative stress of international students. The acculturative stress is defined in this study as the adjustment a person has to go through to acclimate to a new culture. Poyrazli et al. (2010) took into consideration the international students' gender, age, and race/ethnicity and found that the acculturation process

was less stressful if the student felt safe in their new environment. Poyrazli et al. (2010) also identified students of specific ethnicities who are more likely to have a difficult time acculturating. Poyrazli et al. (2010) also found that international students were encountering more additional stress factors than their peers because of the culture shock and adaptation they were experiencing. The inability to communicate with clients from a different culture added to veterinary student stress levels (Gelberg & Gelberg, 2005).

Similar to other studies, Thomason et al. (2006) found that international students experienced discomfort, dislocation, and distress while studying in a new environment. Homesickness, which leads to cultural stress, was experienced by half of the students enrolled at the university (Thomason et al., 2006). Many also reported feeling segregated or discriminated against, which are damaging feelings that can result in a negative impact in their academic performance, as well as result in psychosocial consequences (Thomason et al., 2006; Kegel 2009). However, according to Thomason et al. (2006), those who felt more connected to the University at Melbourne reportedly felt less cultural stress.

Kegel (2009) stated that 30% of international college students report being homesick. Living in an unfamiliar environment and having to assimilate to an unfamiliar environment are factors that reinforce homesickness (Kegel, 2009). Kegel (2009) also discussed how the age and personality of an international student impacts homesickness and the ability to assimilate to a new environment. Kegel (2009) noted that homesickness adds to a student's stress level and can have a negative impact on a student's academic performance, and in extreme cases, leads to suicide.

### **Comparison to Medical Students**

Existing studies tend to focus on medical students or compare veterinary students to medical students. Hafen (2011) determined that veterinary students are more susceptible to depression compared to human medical students, undergraduates, and the general population. Hafen (2011) also stated that studies in veterinary medicine tend to focus on pet owners, rather than veterinary students or veterinarians. Furthermore, Thomas (2012) stated that veterinarians are five times more likely to experience patient death than human medical doctors. Hafen (2011) notes that euthanasia and the study of more than one species are factors that specifically affect veterinary students, but not students of human medicine, contributing to veterinary students' high levels of depression. Furthermore, the challenge of diagnosing and treating multiple species and having to interact effectively with the pet owner is another factor that is present in veterinary medicine and not in human medicine (Killinger, Flanagan, Castine, & Howard, 2017). Gender was also discussed by Hafen (2011) because 75% of veterinary students are female, unlike human medical schools, which are generally half female and half male, emphasizing the demographic differences in these studies. Hafen (2011) also indicated that women are two to three times likely to have mood disorders when compared to men.

Miller et al. (2015) identified similarities in stress factors and changes in the students' self-esteem experienced by veterinary students and students of human medicine. Miller et al. (2015) determined that veterinary students had higher levels of depression and anxiety during the middle of the program when compared to the rest of the program, which is consistent with students of human medicine. Hafen (2011) also examined studies from Kansas State University, University of Nebraska, and East Carolina University and noted that extensive research regarding levels of anxiety and depression was conducted with medical students but not often



with veterinary students. Gelberg and Gelberg (2005) also noted the lack of research specific to veterinary students when compared to the amount of research available on medical students.

Furthermore, Hafen (2011) concluded that veterinary students were experiencing higher levels of depression during their first year of study, when compared to medical students. Hafen (2011) also determined that veterinary students' level of depression increased over time and did not drop until their last year, when it returned to first year levels. Diulio et. al (2015) also determined that one-third to one-half of first year veterinary students reported levels of clinical depression.

### **Psychological Services**

Currently, psychological services are available at fewer than 50% of all 31 veterinary programs in the United States and Canada (Kogan & McConnell, 2001). However, more than 90% of these veterinary schools acknowledged the need for counseling for their veterinary student population (Kogan & McConnell, 2001). Of the programs offering psychological services, less than half had counseling services that were exclusively available for veterinary students and their mental wellness (Kogan & McConnell, 2001). Efforts to address mental health and wellness is an ongoing discussion in veterinary literature and has influenced changes in the curriculum at some veterinary programs (Drake et al., 2017). Drake et al. (2014) created a workshop dedicated to promoting the well-being of veterinary students at a veterinary school. The workshop was open to all veterinary students, and if applicable, their significant others. The workshop resulted in a significant decrease in depression and stress in single students, most notably in homesickness and instructor expectations, and a slight increase in relationship satisfaction among the couples who participated (Drake et al., 2014). Although the groups met for only 50 minutes, once a week for five weeks, the brief involvement of a licensed professional

had a positive psychological effect on all of the participants. Drake et al. (2014) stated that this study provided further evidence that small group discussions help lower depression and other stressors. Their findings support the positive results from peer counseling discussed by Spielman et al. (2015).

Pickles et al. (2012) revealed that the majority of staff and students believed veterinary students had a higher need for counseling support when compared to other students. The strain on personal relationships, lack of time management skills, excessive workload, work/life balance, and ethical reasoning are all factors that can have negative psychological effects. These can lead to long term consequences on mental and physical health if not addressed by a professional (Killinger et al., 2017). A pilot program in the UK was successful using pastoral-based student peer support (Spielman et al., 2015). In a study conducted by Collins and Foote (2005), one-third of the veterinary students who participated wanted a mentor. As a result, a peer/mentor support was developed and implemented for the veterinary students at University of Sydney (Collins & Foote, 2005). Collins and Foote (2005) reported that the program helped improve stress management among the students who participated and a “sense of connectedness and openness was established” (p.172). Establishing programs similar to these in veterinary schools that have international students and have sites that are located in geographically isolated locations have proved to deliver positive results to those students who attend them.

Pickles et al. (2012) concluded that the majority of veterinary students may have difficulty accessing their university support system due to the geographical location, in addition to their heavy workload. Students also noted that the geographical location leads to isolation from support systems, such as counseling, family, and friends according to Pickles et al. (2012). Similarly, Spielman et al. (2015) determined that peers and family become the main support

systems for emotional distress. In 2011, the UK formalized a peer support group system to assist in the emotional support of their veterinary students (Spielman et al., 2015). All peer supporters agreed that skills gained through this experience “were useful beyond the veterinary school context” (p.179). This program resulted in positive effects to the psychological well-being of their veterinary students (Spielman et al., 2015).

Pickles et al. (2012) determined that many veterinary programs are located outside of the main campus, making psychological services not readily accessible. Pickles et al. (2012) discussed a prior study conducted at the University of Edinburgh of fourth-year veterinary students in which distance was determined to be a barrier for veterinary students who wanted to access the university counseling services. To address this problem, the University of Edinburgh provided counseling services on their campus one afternoon a week during 2010 (Pickles et al., 2012). At the end of the year-long study, students as well as faculty valued the counseling services. Furthermore, friends and family were viewed as an important support system to the veterinary students (Pickles et al., 2012; Spielman, 2015).

Pickles et al. (2012) further found that 60% of veterinary students who participated in the study would be more likely to attend counseling services if they were on site. Pickles et al. (2012) identified workload as a veterinary student’s most frequent reason for not attending counseling. Pickles et al. (2012) determined that 40% of veterinary students had encountered challenges when trying to balance their time, leaving them feeling overwhelmed. A study conducted by Drake et al. (2017) stated that students who received psychological treatment for their distress reported 40% lower levels of distress. This section will discuss the psychological findings on stress specific to American veterinary students.

Pickles et al. (2012) also determined that 55% of veterinary students were aware that there was on-site counseling at their university. Duilio et al. (2015) determined that exposing veterinary medicine students to services that would enable them to learn coping mechanism could reduce the number of students engaged in alcohol abuse. Including preventive measures can assist veterinary students in coping with stressful situations appropriately (Duilio et al., 2015; Spielman et al., 2015).

### **Coping Mechanisms**

Although already successfully enrolled in a veterinary program, students reported a high level of competitiveness among their peers (Cardwell & Lewis, 2017). Veterinary students are hard on themselves because getting admitted into a veterinary program is highly competitive. Any perceived weakness affects them greatly (Pickles et al., 2012). As a result, veterinary students choose a variety of coping strategies to deal with stress, particularly alcohol abuse (Kogan et al., 2005). Similarly, high-risk alcohol consumption is common among medical students (Diulio et al., 2015). According to Diulio et al. (2015), medical students engaged in high-risk drinking as a coping mechanism at a higher rate than the general population, meaning medical students are also more likely to drink when depressed. Duilio et al. (2015) noted that most veterinary students were current drinkers and that they had experienced negative consequences from drinking. When compared to medical students, the correlation between veterinary students and alcohol abuse lacks sufficient research (Duilio et al., 2015). However, early intervention and prevention methods did lower alcohol abuse in other student populations (Duilio et al., 2015).

According to Duilio et al. (2015), 86% of participants from the College of Veterinary Medicine at Auburn University drank about five drinks a week. Duilio et al. (2015) also noted

that a quarter of participants were experiencing negative consequences as a result from drinking. Furthermore, half of the participants (53%) admitted to having at least one binge episode in the past month (Duilio et al., 2015). Duilio et al. (2015) also stated that 35% of veterinary students reportedly have used a substance such as food, alcohol, or drugs to cope with a negative mood. In a study conducted by Collins & Foote (2005), 53% of students coped by increasing or decreasing their food intake. Duilio et al. (2015) noted that veterinary students are using legal substances to improve academic performance. Although these substances are legal, such as energy drinks and over the counter medication, they reportedly increase stress levels and anxiety when used in the veterinary student population (Duilio et al., 2015). More than 53% of veterinary students reportedly use food, alcohol, and drugs to manage their distress and undesired mental state (Duilio et al, 2015). More than one-third of veterinary students felt that they were experiencing a health problem due to the demands of their veterinary program (Pickles et al., 2012).

### **Theoretical Framework**

Most studies conducted on stress factors on students enrolled in healthcare education programs are prominent among students of human medicine (Hafen, 2011). However, the studies that do exist provide valuable information about the effects of stress on veterinary students and their coping mechanisms (Kogan et al., 2005; Pickles et al., 2012). Currently, mental health wellness is a topic that is now being included in curricula worldwide because of the high rate of mental instability and suicide among veterinarian students and professionals (Collins & Foote, 2005; Gelberg & Gelberg, 2005; Sutton, 2007).

The concept of acculturation was applied to this study. The Acculturation Stress Theory examines the changes that result at the individual and group level when a different culture is

introduced for an extended period of time (Celenk & Van de Vijver, 2011). Three factors are involved in the acculturation process: antecedent factors, strategies, and consequences (Arend-Tóth & Van de Vijver, 2006). Understanding this process can help determine whether international veterinary students are being affected negatively by their new environment and if it has any impact on their overall academic experience. Psychological distress is one of the possible outcomes of the acculturation process (Celenk & Van De Vijver, 2011). Using the Acculturation Stress Theory can help measure the impact that culture shock has on them (Poyrazli et al., 2010). Applying this framework to this study helps guide the changes in curriculum to support the needs of the student.

Pickles et al. (2012) believed that veterinary teaching staff do not recognize the size of the workload they are giving veterinary students. Workload is mentioned as one of the main contributors of stress in a study by Collins and Foote (2005). According to Pickles et al. (2012), unrealistic expectations were identified as the main cause of student stress by half of students and half of staff who participated in the study. This was also discussed in studies conducted by Sutton (2007) and Gelberg and Gelberg (2005).

### **Curriculum Discussion**

Kogan et al. (2005) stated “in order to produce the best medical professionals, schools must address the mental health needs of their students” (p.198). Kogan et al. (2005) believes that “there is a growing need for psychological services to be an integral part of veterinary and medical colleges” (p.198). However, “less than 50% of veterinary schools in North America have exclusive counseling services available to veterinary students...most of these services are part time” (Kogan et al., 2005, p.198). Furthermore, Kogan et al. (2015) stated that 93% of the North American veterinary schools who participated in their study “reported either ‘some need’

or ‘a great deal of need’ for psychological services” (p. 198). It is clear by these studies that veterinary programs are acknowledging the need for these services and many are planning on implementing them in their institutions.

According to Miller et al. (2015), there is a link between academic stress and a student’s overall health and well-being. Over 90% of veterinary students identified workload, in addition to exams, as the main causes of their stress (Pickles et al., 2012). Miller et al. (2015) believe that veterinary programs need to support their students’ well-being since it is such a large investment of time, money, and energy. They state that students in health professions are more likely to have mental health problems (Miller et al., 2015). Reisbig et al. (2012) explained that “this suggests that one of the best places to intervene may be while veterinary medical students are enrolled in institutions of higher education” (p. 342). Armed with this knowledge, current international veterinary programs can make strides to make the changes necessary in their programs to address the mental wellness of their students.

As previously mentioned, veterinary teaching staff may not recognize the size of the workload they are giving veterinary students (Pickles et al., 2012). Workload is mentioned as one of the main contributors of stress in a study by Collins and Foote (2005) and Pickles et al. (2012). According to Pickles et al. (2012), unrealistic expectations were identified as the main cause of student stress by half of students and staff who participated in the study, which was also noted by Sutton (2007) and Gelberg and Gelberg (2005). Powers (2002) also determined that American veterinary students viewed their experience in a positive way, although 51% of students felt the coursework was excessive.

Miller et al. (2015) found that negative perceptions of their veterinary education affects the student’s self-esteem and overall health. According to Miller et al. (2015), a lower self-

esteem will result in future academic issues. Similarly, Hafen et al. (2013) determined poor mental health negatively impacts academic performance. Kogan et al. (2005) also discussed previous studies conducted on medical students and the effect stress has on their academic performance. According to Miller et al. (2015), the higher veterinary students' self-esteem, the lower their reported stress levels. These students also had a more positive perspective on their learning environment (Miller et al., 2015).

Langebaek, Eika, Jensen, Tanggaard, Toft, and Berendt (2012) examined the anxiety students experienced in different courses and compared anxiety levels in surgical and non-surgical courses. They found that anxiety levels were higher in a surgical course. In contrast, Miller et al. (2015) discussed studies in which veterinary student motivation is higher when they are in a clinical environment. Miller et al. (2015) speculate motivation may be higher because veterinary students interact with animals.

Reisbig et al. (2012) also suggested that teaching veterinary students coping skills in their curriculum may help reduce mental distress. Reisbig et al. (2012) stated "The mental health difficulties identified in veterinary medical students suggests that intervention is needed within the context of the intensive education received while in veterinary school" (p.341). A study conducted by Pickles et al. (2012) also noted that the veterinary curriculum is not sufficiently equipped to prepare students to cope with stress. Effective communication when addressing clients is an addition to the curriculum that can help veterinary students once they enter the field (Gelberg & Gelberg, 2005). Collins and Foote (2005) noted these skills should be introduced in the curriculum so that they can be used in the student's future clinical practice. Furthermore, Sutton (2007) determined that veterinary programs should include time management training and learning style information to equip veterinary students with the skills they need to cope properly



with the extensive program. Time management, nutrition, and anger management strategies are all additions that Gelberg and Gelberg (2005) feel will help students while in their programs and also when they are in the veterinary field as professionals. Citing previous studies conducted on medical students and the effect stress has on their academic performance, Kogan et al. (2005) discussed the coping strategies veterinary students choose to deal with stress, particularly alcohol abuse. However, Duilio et al. (2015) stated the lack of research specific to veterinary students and alcohol abuse when compared to medical students. Kogan et al. (2005) also discussed poor coping mechanisms within the veterinary student population, and discussed their experience and its relation to gender. When discussing gender, their study has proved women are more stressed as veterinarians than men, which, as previously stated, is an important fact to consider since 70% of U.S. veterinary students are female (Kogan et al., 2005).

### **Conclusion**

Burnout and mental wellness in the veterinary field is a very “hot” topic among veterinary programs worldwide. Veterinarians are now considered the most suicidal healthcare profession, more suicidal than doctors or dentists (Cardwell et al., 2017). This trend is alarming as there are far fewer veterinary professionals compared to other healthcare professions (Cardwell et al., 2017). “Suicide is the third leading cause of death in the U.S. for individuals between the ages of 18 and 24 . . . student burnout can be correlated with suicide ideation” (Kogan et al., 2012, p.83). Existing studies do not consider the nonacademic stressors that veterinary students experience while starting a new program, a gap in the literature needing attention. Studies seem to be more focused on the student’s academic experience and perception of the curriculum (Kogan et al., 2005). Existing articles and studies focus more on veterinarians in practice or the clients they are serving rather than on students enrolled in veterinary programs

(Bakker et al, 2017). With 14 currently AVMA accredited international veterinary schools and plans for more in the future, it is important to remember that the students attending these schools have a completely different experience than peers graduating from U.S. programs. Studies and programs that have implemented prevention strategies have been successful in reducing stress, proving these efforts beneficial.

## CHAPTER THREE

### METHODOLOGY

The purpose of this mixed method instrumental case study was to gain a better understanding of the levels of acculturative stress experienced by veterinary students while enrolled full time in geographically isolated locations. An instrumental mixed method case study was chosen to gain a deeper understanding of the additional stress factors experienced by the graduates who attended and completed this program by examining their experiences and looking for similarities. This study also explored any correlation between these stress levels and their perceived satisfaction levels. The research strategies, setting, sampling procedures, data collection, analysis methods, participant rights, and potential limitations of this study are discussed in this chapter.

Qualitative research enables participants to identify their experiences in their own words (Karlsson, 2016). It also helps further explain the quantitative findings of the survey tool, minimizing misinterpretation while providing written evidence. Data collected from these participants was analyzed within this bounded system. The method selected for this instrumental case study enhanced data collected by using triangulation (Maggs-Rapport, 2000). The data from open-ended questions enabled the participants to describe their perspective on their experience in this case study. The researcher interpreted the meaning embedded in the participants' experience and the quantitative results of the instrument with these students while enrolled in these types of programs (Maggs-Rapport, 2000). The qualitative data collected by open ended questions asked for additional information about the participants' experience while veterinary students. This data was collected via the survey tool Survey Monkey. The data collected provided additional insight to their experiences and perspectives that may have not been addressed in the survey tool. These

questions focused mostly on acculturation, as well as their perceived satisfaction level in choosing a nontraditional site to study veterinary medicine.

For the quantitative data, a survey method with a Likert scale served as the primary means of data collection. Participants are scattered all over the world; therefore, this method was chosen for its efficiency and validity. The Acculturative Stress Scale for International Students provided quantitative information on how international veterinary students adjusted to the cultural environment around them. This 36-question Likert questionnaire was designed for international students to self-report their experiences in a new cultural environment. The scale asks students to assess statements about their environment on a scale from 1 (strongly disagree) to 7 (strongly agree). This instrument contained seven subscales that are potential aspects of adapting to a new environment: Perceived Discrimination, Homesickness, Perceived Hate, Fear, Stress, Guilt, and Miscellaneous.

All data collected was interpreted and analyzed from a theoretical perspective. By applying the Acculturation Stress Theory, the experience had by international veterinary students can be understood by the factors that contribute to acculturation stress. Further understanding of this process can determine whether international veterinary students are being affected negatively by their new environment and reveal any impact it has to their overall academic experience. This is especially important in regard to mental wellness, since psychological distress is a potential outcome of the acculturation process (Celenk & Van De Vijver, 2011). The Acculturation Stress Theory enabled the researcher to measure the impact that culture shock had on the participants of this study (Poyrazli et al., 2010). Data triangulation assisted in facilitating the strengths of these approaches to counterbalance the weaknesses of the other approaches (Creswell, 2015). Using a theory that regards stress and culture shock as well as psychological

distress supported a multiperspective interpretation. It also helped minimize overall bias in a case study by analyzing data using multiple subscales for measure (Guion, Diehl, & McDonald, 2002). The researcher recognizes existing bias in this case study, making the use of this theory to analyze data especially important. The detailed analysis of this data will be discussed later in this chapter. Using a nonexperimental approach to this mixed method study deepened the understanding of the cultural factors experienced by veterinary students while they were enrolled in an international program in a remote location.

### **Setting and Participants**

The purpose of this study was to better understand if nonacademic factors, such as culture shock, impacted the overall experience of veterinary students who were enrolled in and graduated from an international veterinary program situated in a remote location. Using a purposeful sampling strategy and analytical generalization, a bounded system was the focus of this mixed method case study (Merriam, 2009). The bounded system included veterinary graduates who were enrolled in international veterinary programs located in geographically remote areas and completed the program. These students had the opportunity to go back and forth from remote campus locations to their country of origin and realize the differences in each living situation. Lastly, this group was chosen because they have completed their academic career at the university. They have had time to live both on and off campus, as well as to fully experience the routine of living in a remote location. Using a typical sampling strategy among the graduate veterinary students, there were criteria that determined participation. The criteria were:

1. The participant must have graduated from an international veterinary program.
2. The participant must have graduated within the past eight years.

3. The participant must have attended an international university as an international student.
4. The participant must acknowledge that participation will have no influence on academic affiliations and participation is anonymous and confidential.
5. Gender, age, and sexual orientation were not criteria for participation but were requested in the survey.

### **Access to Graduate Student Population**

Both qualitative and quantitative methods were used to examine the cultural stressors experienced by veterinary graduates of international programs established in a remote location. Graduates from this institution were contacted via a secret group created through the social media platform Facebook. According to Fryrear (2015), Facebook is the preferred network for distributing surveys, as well as survey results. According to Fryyear (2015) social media is called the “ultimately qualitative research tool” (Overcoming Social Media Limitations for Survey Data Collection, 2015, para. 4) and is a useful way to contact participants that are part of a bounded system. Using the group feature in Facebook, the researcher invited the participants who fit the criteria. Participants received a message inviting them to participate in this study. They were notified of their rights as a participant of this study prior to receiving the survey and were also notified that their participation was completely voluntary and anonymous. Potential participants were also briefed on the phenomenon under analysis in this study so that they understood the expectations of the researcher and the overall goal of this study. This group information contained a link to the survey, which contained Likert scale questions, along with the open-ended questions that were used for data collection. The sample population received the survey link and all information prior to its distribution via Facebook; even if they chose not to participate, it was

available to them. To ensure privacy, the link was provided on the group page and led to the survey provided by a third party. The survey did not include any identifying information and as such, anonymity was assured.

A potential of up to 200 qualified participants in this population sample were identified and were accessible via social media, although a minimum number of 50 participants was considered sufficient to conduct this study according to the researcher and academic advisors who were part of this study. Using a purposeful sample strategy, this sample is limited to those who have graduated from an international veterinary institution and are on social media (Merriam, 2009). This was a mixed method case study, which meant more participants and responses allowed for a greater variation of perspectives to be included (Creswell, 2012). By choosing a purposeful sampling, the researcher ensured that the specific group of students and their different perspectives were part of the sample (Merriam 2009, 2012).

### **Survey Design**

This mixed method case study used an electronic survey as its collection method. The design of the questions used in the survey included qualitative and quantitative methods to obtain a multimethod approach. It included demographic and situational information, as well as open-ended questions measuring and identifying cultural stress, acculturations stress, psychological distress, and overall student satisfaction levels. Using existing scales and surveys, this qualitative and quantitative questionnaire also contained descriptive statistics, as well as participants' perception of their stress levels, overall satisfaction, and health and well-being.

The survey was sent to the participants via social media. It explained its purpose as well as the confidentiality of the participants and the answers provided. It also contained a brief introduction and glossary to define terminology used in the survey. This ensured that every

participant interpreted the questions in the same way and decreased misinterpretation by the participant of the goal of the questions.

The survey ended with descriptive statistics. The demographic information was nonidentifying. It asked for age, gender, sexual orientation, marital status, whether their significant other lived with them at the remote location, ethnicity/race, and living accommodations, whether on or off campus. Qualitative questions asked about their overall perceived satisfaction, unaddressed stress factors, and perceived discrimination.

To measure acculturative stress in this sample, open-ended questions and Likert scale questions were developed using the Acculturative Stress Scale for International Students by Sandhu and Asrabadi (1994). With permission from its creator, this quantitative instrument assessed the perceived stress of a student due to the change in culture and environment (Appendix A). Homesickness, fear, and guilt were some of the identifying factors in this instrument (Sandhu & Asrabadi, 1994). This instrument was a guide for developing the survey, ensuring that the questions being asked would focus on the cultural stressors experienced by these participants and their perception of their experience.

Additionally, qualitative questions asked for example situations regarding acculturation and overall perceived satisfaction. Choosing the relevant items from the original questionnaire, these questions were qualitative and quantitative and directed toward this specific veterinary student population. A combination of these methods was used to explore the cognitive and behavioral strategies reported by the students and to contribute additional information that may not have been captured by the close-ended questions.



### **Data Analysis**

This mixed methods case study was conducted on a bounded system of people. This sample is considered to be a bounded system because these veterinary students went through programs located internationally, and the students were therefore isolated from their support systems (Karlsson, 2016). Furthermore, the purpose of this case study was to gain further understanding of their experience while enrolled in this specialized program located in an isolated area (Karlsson, 2016). Since the survey contained both qualitative and quantitative data, along with questions that were geared toward acculturative stress and perceived student satisfaction, the responses were analyzed using a two-cycle coding method. The methodological triangulation used in this study included a survey with Likert-scale questions, open-ended questions, and an existing validated instrument. Using the acculturation theory with qualitative and quantitative data, the researcher analyzed results of this study from different perspectives and interpreted them accordingly (Guion, 2002).

The qualitative answers from the survey were analyzed and coded to identify themes within the experiences the participants describe (Magg-Rapport, 2000). The questions from the instrument are categorized into seven subscales and then into themes that have been validated as part of the acculturation process. Responses that are repetitive were interpreted as patterns, and increased frequency suggested a level of high significance within this bounded system for gaining understanding of the case (Saldaña, 2009; Stake, 2003). The qualitative data collected was based on the participants' self-reported satisfaction levels. Comparing this data to the results of the quantitative portion of the survey provided a deeper understanding of the acculturative stressors experienced by the students who attend international veterinary programs in isolated

locations (Kennedy, 2009). Combining these methods provided a more comprehensive outcome to the data.

The quantitative portion of this survey was analyzed in accordance with the seven subscales that are part of the Acculturative Stress Scale for International Students. Within this instrument, there are eight statements regarding Perceived Discrimination, four statements regarding Homesickness, five statements regarding Perceived Hate, four statements regarding Fear, three statements regarding Stress, two statements regarding Guilt, and ten statements regarding other relevant aspects of acculturation that fall under the category of Miscellaneous. The scores from these statements were used to find any possible correlations between the qualitative results and the available descriptive statistics.

The overall objective of this instrumental case study was to gain a better understanding of the experience had by international students who chose to attend international veterinary programs located in isolated areas. The data was analyzed to find any correlations existing among the descriptive statistics, the scores from the Acculturative Stress Scale for International Students, and open-ended questions. Demographic information, such as gender and age, was used to find correlations between the acculturative stress scale findings and student self-perceived satisfaction. Additionally, sexual orientation and preference was asked, but not required. The cultures of some of these countries where the campuses are located considers homosexuality illegal, which specifically impacts those with significant others of the same gender. Acting as an interpreter, the researcher used methodological and theoretical triangulation to identify patterns in the experiences expressed and to obtain a clearer outcome from the data collected (Maggs-Rapport, 2000).

### **Participant Rights**

This was a nonexperimental mixed method instrumental case study that focused on the individuals who attended veterinary programs situated in geographically isolated locations. The participants were given information about the purpose and goal of this study prior to the distribution of this survey. Although demographic information was requested during the study, the participants of this study were identified. The participants received a consent form prior to the conduction of this survey that detailed its use and privacy protection prior to their participation. It also outlined other relevant facts about the survey. Furthermore, it informed them that this is a voluntary survey and they were under no obligation to answer every question. Participants were not compensated for their participation. They were informed that this study had no affiliation to their veterinary program and it is to be considered completely independent from their institution. They also received contact information for the researcher and the faculty advisor involved if they were to have any additional questions that were not addressed or any other concerns that needed to be clarified.

### **Limitations**

The purpose of this mixed method instrumental case study was to gain a better understanding of the levels of acculturative stress experienced by veterinary students while enrolled full time in geographically isolated locations. The main limitation of this study was the limited sample of veterinary graduates on social media from international veterinary programs. Not all international veterinary students who graduated from international veterinary programs are active or accessible via social media, in particular Facebook, the social media site used in this study. Therefore, this should be considered only a small sample of the international veterinary student population. Similar programs currently exist with comparable demographics. Hence, this

study should be considered a generalization of one sample population of international student representation available and accessible at the time of this study. Demographic information in this study has demonstrated an impact on their experiences and will be discussed later in this study. Additionally, some of the institutions receive a new cohort of students multiple times a year. The demographics of the international veterinary students that are admitted vary every year; therefore, so would the results of the same survey year after year. This result of this same study can also vary depending on the participants who are accessible and willing to participate, as well as the geographical location of the international programs of the sample population.

Another limitation of this study was the voluntary participation of the chosen and accessible population sample. Graduates from these types of programs practice all over the world, so tracking them down is especially challenging. Thanks to social media, veterinarians from these programs are accessible. Although there may be alumni from these types of programs who are not on social media, colleagues of theirs volunteered to pass along the survey link to others who would be interested in participating. The timeline for this survey was chosen because it was before the rush of the holiday season when people are getting new pets and new patients are coming in, and regular patients come in for their annual checkups. Given two weeks to participate, there were two veterinarians who participated via the web link rather than through the social media link.

Another limitation was considered: the ability to be comfortable using technology. Since the survey is in an online format, the participant must be able to use technology to participate, unless they make other arrangements with the researcher to participate. This would have limited the anonymity of the participant, but their participation and identity would still be confidential. However, there were no requests for an alternative mode of taking this survey. Internet-based

surveys, especially those that assure anonymity, have proved to increase the reporting of information that is considered sensitive or personal when compared to other forms of surveying (Szolnoki & Hoffman, 2013). This can be considered a benefit of this type of survey and of the data collection process, given its theme and requests for personal experiences. Furthermore, 79% of thirty- to forty-nine-year-olds are on Facebook, with 83% of women and 75% of men using Facebook, the majority of the target audience was reached for participation in this study (Gunn, 2017).

A limitation of this survey was the internet itself. Internet connectivity in certain locations and technology can be challenging if devices are not up to date. Since the surveys were distributed via social media and surveys were conducted via the internet, it was best to make sure the survey had the ability to save automatically in the event of internet interruption. Although two participants reportedly had some issues in the midst of taking this survey, they were able to return to it without a problem thanks to the ability of this tool to save their progress automatically. An alternate option for taking this survey was using a paper form. If the internet and/or the website was not cooperating with the survey tool or if there were user difficulties, then this would have been a viable option. In the event that a paper form would have needed to be distributed, then the researcher would have taken action on a case by case basis.

Lastly, the bias on behalf of the researcher was acknowledged to be one of the limitations of this study. The researcher has lived in a remote location in the past and was required to separate emotion from facts and personal experience when analyzing data. Shapiro (2013) and Cahn (2014) both determined women are more likely to follow the ethics of care, while men are more likely to follow the ethics of justice. However, care ethics focuses on others rather than oneself (Shapiro, 2013). Following that description, the needs of the participant involved will be

a priority in this study. As a female and a certified mediator, the researcher is trained to be aware of potential bias in the appropriate situations and used these skills throughout the conduction and analysis of this study.

## CHAPTER FOUR

### RESULTS

The purpose of this mixed method study was to gain a deeper and better understanding about the experience international veterinary students had while they were enrolled in international veterinary programs located in geographically isolated areas. Through reflection, these graduates related their experiences as international veterinary students and their perception while they attended these isolated veterinary programs. By answering qualitative and quantitative questions, these graduates described how the process of acculturation affected their overall experience.

Throughout this chapter are the results of the qualitative and quantitative survey administered to the international graduates of veterinary programs located in geographically isolated locations. The objective of this study measured the impact of potential acculturation stress on international veterinary students who attended a veterinary program located in a geographically isolated location. Using a combination of quantitative and qualitative methods, an online survey was administered via Survey Monkey. The quantitative acculturation data was measured by the Acculturation Stress Scale for International Students (Sandhu, 2004) (see Appendix B). Additional qualitative data was collected asking for additional information that was addressed and detailed in the quantitative portion of the survey, as well as questions regarding perceived satisfaction levels. Stress, combined with the acculturation process, has been proved to affect the perceived satisfaction levels of these participants (Rudmin, 2009). Also included were additional questions that served as the descriptive statistics of the participants. This study contained the results from 75 veterinarians who all graduated from international veterinary programs located in geographically isolated areas. Participants were from all over the

world; however, most were from the United States. This chapter outlines the results of the survey and discusses the qualitative and quantitative findings of the mixed method online administered to the graduates of this program.

### **Descriptive Statistics of Participants**

In total, 75 veterinarians who have graduated from geographically isolated veterinary programs participated in this online survey. Of the 75 graduates who participated in this survey, only 71 answered the first demographic question regarding nationality, while four skipped it. Note that the majority of those who participated and answered this question 92.96% (66), were from the United States. Additionally, two participants stated they were of Canadian descent. Only three participants chose the “Other” option, stating they were British, Barbadian, and Israeli. Only five participants stated they were not of American descent. See Table 1 for the breakdown of the nationality of the participants.

Table 1.

#### *Descriptive Statistics on Nationality*

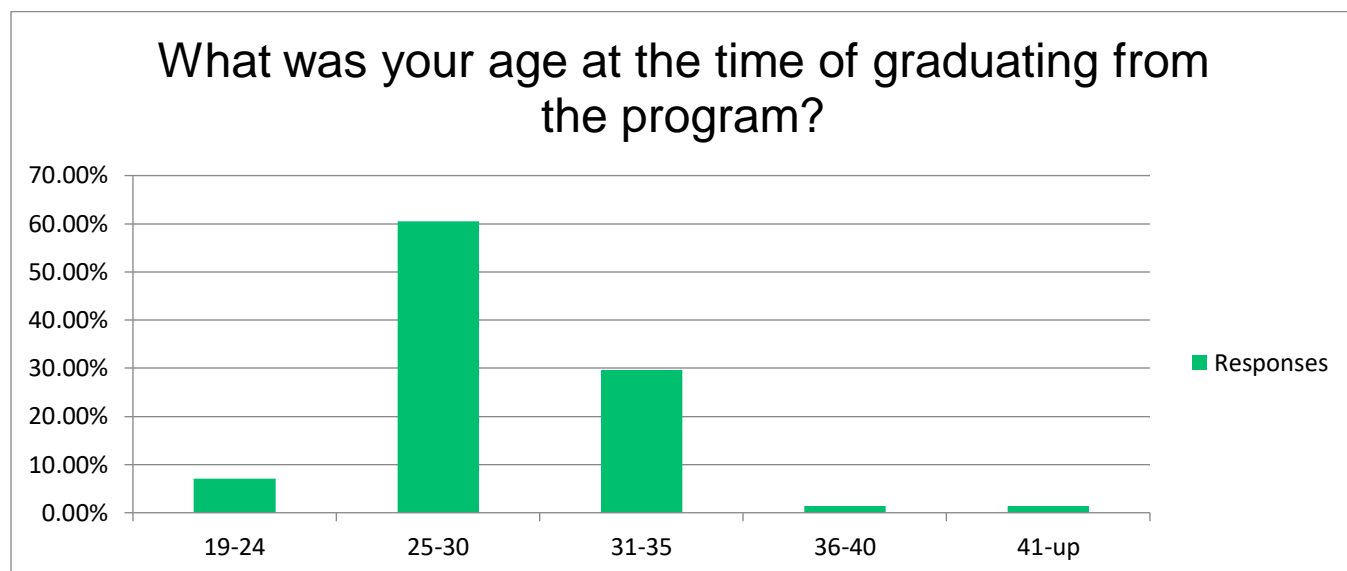
<b>Nationality</b>	<b>Percentage</b>	<b>Number of Responses</b>
<b>American</b>	92.96%	66
<b>Canadian</b>	2.82%	2
<b>Other</b>	4.23%	3
<b>Prefer not to respond</b>	0%	0

The age of the students at the time of graduation was also asked of the participants. Age is a factor that can affect the impact of the participants’ overall perceived satisfaction level and their acculturation process (Rudmin, 2009). Of the 75 participants, 71 answered the question,



while four skipped this question. This question enabled the researcher to determine the existing correlation between the age of the graduate and their perceived satisfaction levels and acculturation stress impacts. The majority of graduating students were between the ages of 25 and 30 at the time of graduation. Figure 1 below shows the breakdown of the age of the veterinarians at the time of their graduation.

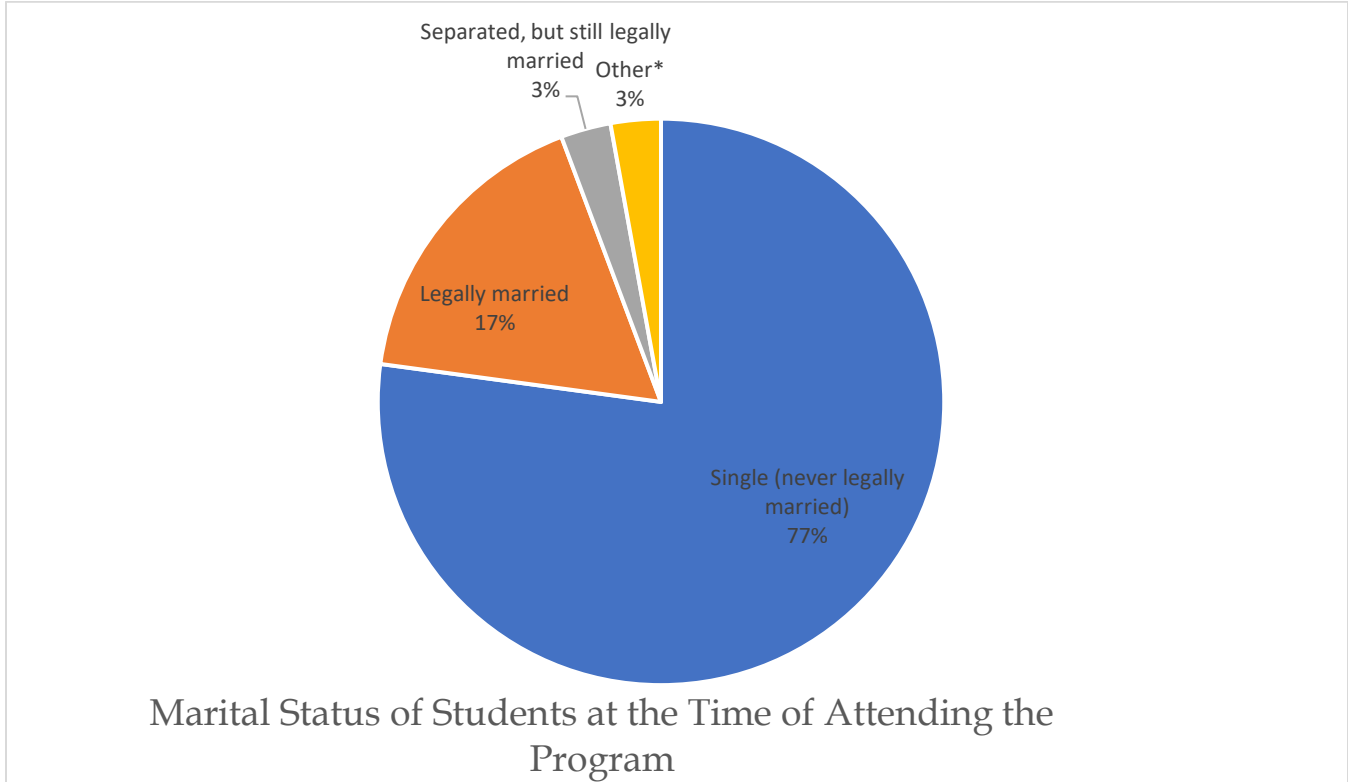
*Figure 1. Descriptive Statistics of Age at the Time of Graduation*



With the significance of support systems and relationships addressed in the literature review, questions directed at the marital status and location of their significant other were included. Of the 75 participants who took this survey, four skipped the question on marital status. Out of the 71 who answered this question, 55 were single and 12 were legally married. Two participants answered “other” and explained that they were both in long term relationships but not married. The following question was directed toward the location of the significant other. Although 23 participants answered this question as not applicable, 19 answered “yes,” that their significant other lived with them while they attended the program. The four individuals who

answered “other” explained that they did not consistently live with their significant others while in the program.

Figure 2. Descriptive Statistic of Marital Status at the Time of Attending the Program

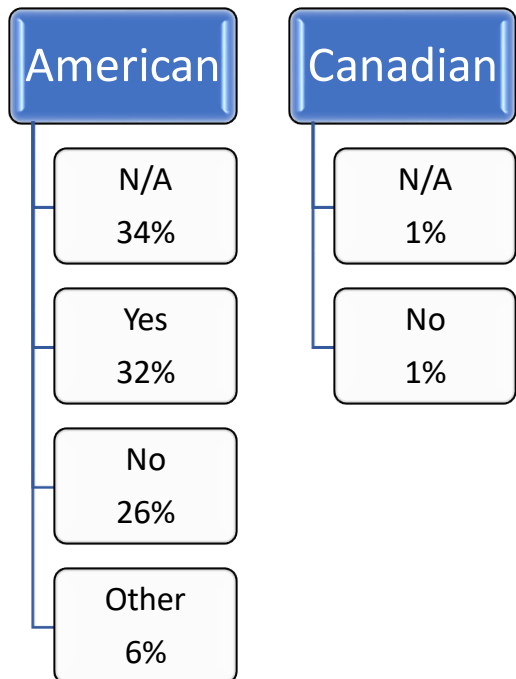


\*Other: Long term relationship but not married

The only participants to answer the question regarding their significant others living situation while they were enrolled in their academic program were Americans and Canadians.

The following figure details the information provided by the participants.

Figure 3. Significant Others Who Lived with the Student While in the Program



\*Note: No other nationality reported significant others living with them on location

Gender played an important role in the analysis in this data. Gender, similar to age, is another factor that can affect the impact of the participants' overall perceived satisfaction level and their acculturation process (Rudmin, 2009). Gender is linked to stress management and the ability to manage difficult as well as unfamiliar situations. With the amount of women joining the veterinary field, gender is an important part of this study. Sexual orientation also plays a critical role in this study. The laws of some of these isolated regions have deemed homosexuality illegal. This means that same sex couples do not have rights in this country and are not legally allowed to reside in this country. Although this may not be a university regulation, it does create an additional challenge for this demographic. As a result, homosexual couples had to find creative ways to get their significant others to the country and keep their relationship secret. Even with alternative ways around the laws of the country, they cannot be granted the same type of visa given to a heterosexual couple. Of the 75 participants, 71 answered these questions,

meaning 4 omitted the response. Not every participant disclosed their sexual orientation. Table 2 outlines the self-reported gender and sexual orientation of the participants who answered the question.

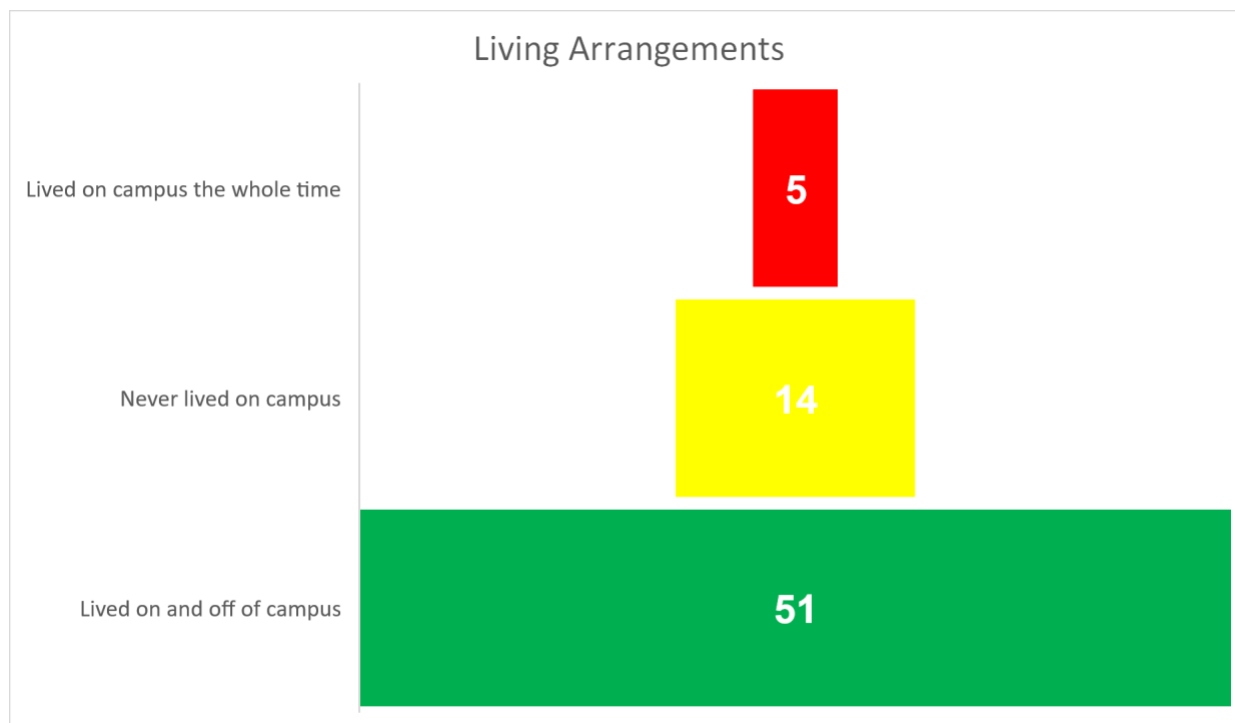
Table 2.

*Self-Reported Gender and Sexual Orientation of Participants*

<b>Answer</b>	<b>Number of Responses</b>
<b>Male</b>	14
<b>Female</b>	55
<b>Homosexual</b>	5
<b>Prefer not to respond</b>	1

Living arrangements can also determine the impact of acculturation on the participant. If the participant lived on campus the whole time, their exposure to the culture is limited. Even though the staff of the university are all of local descent, they must abide by university regulations. These regulations resemble the ones of an American university. On the contrary, those living off campus meant following the rules and the regulations of the country and its culture. This also meant they had to set up local accounts, increase their interaction with locals, and integrate themselves into the culture of the community. The results from this descriptive analysis is depicted in Figure 3 below.

Figure 4. Living Arrangements



From the data received, the majority of the participants had the opportunity to live both on and off campus. Living off campus forced these international veterinary students to assimilate into the existing society around them. The five participants who lived on campus their entire academic career did not have to set up local accounts and interact as frequently with those native to the region.

### Methodology Review

This study includes both qualitative and quantitative data. The theory applied to the quantitative and qualitative research is the Acculturative Stress Theory. This theory framed the data from the qualitative and quantitative portion of the survey. Discovering patterns from the quantitative data and the frequency of themes stated in the qualitative data results enabled the researcher to gain a deeper understanding of the experience had by international veterinary

students while attending the geographically isolated program. The rest of this chapter will focus on the data analysis methods of each of the quantitative and qualitative data, the presentation of each of their results, as well as some of their similarities and their contradictions, and a summary of each method.

## **Quantitative Results**

### **Data Analysis Method**

The quantitative portion of the survey was based on an existing validated instrument. The Acculturation Stress Scale for International Students contains 36 Likert scale statements that are placed into seven subscales that correlate to the process of acculturation. Within these seven subscales, eight statements regard Perceived Discrimination, four statements regard Homesickness, five statements regard Perceived Hate, four statements regard Fear, three statements regard Stress, two statements regard Guilt, and ten statements regard other relevant aspects of acculturation that fall under the category of Miscellaneous. Using the subscales provided by the validated instrument, the average of each subscale of questions and the demographic correlations will be discussed in this chapter. These subscales will be placed into the main themes for this study.

### **Presentation of Results**

The quantitative data was collected from the statements from the Acculturation Stress Scale for International Students. This portion of the survey was answered by 75 participants. The following sections demonstrate the complete results of the 36-quantitative questions. Each section details the results of each of the subscales of the instrument. The veterinarians answered statements designed with a Likert scale design: 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree.

**Subscale #1 Perceived Discrimination.** Perceived discrimination is one of the subscales of the instrument used as part of this study. According to the quantitative results of the Acculturation Stress Scale for International Students, international students who participated in this study did not perceive high levels of discrimination, despite being the minority in their region. However, it is noted that more than 25% of participants did choose “agree” when asked if they felt as if they were treated differently based on their race or color. Furthermore, 50% of participants chose the option of “strongly disagree” when asked if they felt they were denied many opportunities based on their ethnicity. Table 3 details the results of this subscale based on the statements regarding perceived discrimination.

Table 3.

*Perceived Discrimination Results*

<b>Perceived Discrimination</b>							
<b>Question</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Total</b>	<b>Weighted Average</b>
I was treated differently in social situations.	9.86%	46.48%	21.13%	19.72%	2.82%	71	2.59
Others were biased toward me.	26.39%	34.72%	18.06%	19.44%	1.39%	72	2.35
Many opportunities were denied to me.	50.00%	40.28%	9.72%	0.00%	0.00%	72	1.6
I felt that I received unequal treatment.	29.17%	38.89%	11.11%	13.89%	6.94%	72	2.31
I was denied what I deserved.	47.95%	46.58%	4.11%	1.37%	0.00%	73	1.59
I felt that my people were discriminated against.	39.44%	26.76%	11.27%	19.72%	2.82%	71	2.2
I was treated differently because of my race.	23.61%	23.61%	16.67%	26.39%	9.72%	72	2.75
I was treated differently because of my color.	21.13%	26.76%	16.90%	29.58%	5.63%	71	2.72

**Subscale #2 Homesickness.** The second subscale of this instrument is homesickness.

Homesickness is the subscale that scored the highest of all subscales. About half of the

participants responded “agree” and “strongly agree” to feeling sad about leaving their families behind, as well as missing the country and people of their origin. Interestingly, the statement that scored the lowest and had the most participants “disagree” or “strongly disagree” was the statement regarding living in an unfamiliar area. According to the quantitative results of this study, the participants, despite feeling homesick, did not feel sad living in an unfamiliar area.

Table 4 details the results of the statements regarding homesickness.

Table 4.

### *Homesickness Results*

<b>Homesickness</b>							
<b>Question</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Total</b>	<b>Weighted Average</b>
Homesickness for my country bothered me.	11.11%	38.89%	22.22%	22.22%	5.56%	72	2.72
I felt sad living in unfamiliar surroundings there.	40.28%	41.67%	12.50%	4.17%	1.39%	72	1.85
I missed the country and people of my national origin.	9.72%	18.06%	22.22%	47.22%	2.78%	72	3.15
I felt sad leaving my relatives behind.	13.70%	20.55%	9.59%	46.58%	9.59%	73	3.18

**Subscale #3 Perceived Hate.** The next subscale statements were placed into was perceived hate. Overall, the quantitative data proved by the participants determined that they did not perceive high levels of hate while living in a geographically isolated region. Furthermore, more than 55% of participants did not feel rejected by natives or locals when their cultural values were not appreciated. The quantitative data demonstrated in Table 5 determined that the overall



consensus from the participants was that they did not perceive high levels of hate while being a veterinary student in a geographically isolated location.

Table 5.

*Perceived Hate Results*

Perceived Hate							
Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Weighted Average
I felt rejected when people were sarcastic toward my cultural values	20.83%	54.17%	22.22%	2.78%	0.00%	72	2.07
People from some ethnic groups showed hatred toward me nonverbally.	29.17%	36.11%	6.94%	25.00%	2.78%	72	2.36
I felt rejected when others didn't appreciate my cultural values.	55.56%	33.33%	5.56%	5.56%	0.00%	72	1.61
People from some other ethnic groups showed hatred toward me through their actions.	32.39%	30.99%	12.68%	22.54%	1.41%	71	2.3
People from some other ethnic groups showed hatred toward me verbally.	45.83%	25.00%	5.56%	18.06%	5.56%	72	2.13

**Subscale #4 Fear.** Although international students are living in an unfamiliar area, isolated from their regular lifestyles and support system, they did not report high levels of fear. The quantitative findings determined that over 90% of participants did not feel that they needed to frequently relocate while in their unfamiliar surroundings due to fear. However, about 20% did feel a sense of fear toward their personal safety based on their different cultural background. Table 6 details the results of the statements regarding fear provided by the participants who attended a geographically isolated veterinary program as an international veterinary student.

Table 6.

*Fear Results*

<b>Fear</b>							
<b>Question</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Total</b>	<b>Weighted Average</b>
I feared for my personal safety because of my different cultural background.	29.17%	33.33%	18.06%	13.89%	5.56%	72	2.33
I had to frequently relocate for fear of others.	65.28%	26.39%	2.78%	4.17%	1.39%	72	1.5
I felt insecure there.	30.00%	41.43%	24.29%	4.29%	0.00%	70	2.03
I generally kept a low profile due to fear from other ethnic groups.	47.22%	40.28%	4.17%	8.33%	0.00%	72	1.74

**Subscale #5 Stress due to Change/Culture Shock.** The results from this subscale were lower than the researcher expected. According to the quantitative results from this subscale, the participants reported feeling low levels of stress due to change and culture shock. Notably, more than 86% of participants reportedly felt no or little stress due to change and culture shock. Not one participant chose the option of “strongly agree” when asked if they felt uncomfortable adjusting to new cultural values. Table 7 details the scores of this subscale.

Table 7.

*Stress Due to Change/Culture Shock*

Stress Due to Change/Culture Shock							
Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Weighted Average
I felt uncomfortable adjusting to new foods and/or to new eating habits.	40.28%	41.67%	5.56%	8.33%	4.17%	72	1.94
I felt overwhelmed that multiple pressures were placed upon me after my migration into that society.	29.17%	52.78%	9.72%	6.94%	1.39%	72	1.99
I felt uncomfortable adjusting to new cultural values.	30.99%	56.34%	5.63%	7.04%	0.00%	71	1.89

**Subscale #6 Guilt.** The quantitative results regarding statement of guilt among the participants in this study were low. The majority of the participants did not feel high levels of guilt regarding their decision to pursue their academics in a geographically isolated setting. However, it is important to note that 70% of the participants reported being single and 60% were within the ages of 25 and 30 while attending their veterinary programs. Results may have been influenced if the sample population had more participants that were legally married and/or older. Table 8 details the full results of this statement regarding guilt.

Table 8.

*Guilt Results*

Guilt							
Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Weighted Average
I felt guilty leaving my family and friends behind.	31.94%	29.17%	13.89%	20.83%	4.17%	72	2.36
I felt guilty that I was living a different lifestyle there.	45.95%	35.14%	5.41%	10.81%	2.70%	74	1.89

**Subscale #7 Miscellaneous.** The creator of the survey instrument used in this study used the subscale “Miscellaneous” for questions he felt did not fit into the other subscales. For this reason, the researcher maintained this category, although it is not descriptive of the statements within it. Some of these questions may not have been as applicable, depending on the participants’ own backgrounds and the culture of the setting in which the veterinary program is located. For instance, with more than 92% of participants being American, many of the international veterinary programs are located in countries in which English is the official language of the region. Additionally, more than 92% did not feel low based on their cultural background as an international student attending a geographically isolated veterinary program and 82% did not feel a sense of being low according to the societal status standards of the country the international veterinary student lived in. However, 13% did feel that people did not associate with them based on their ethnicity. Overall, scores were very low in this subscale of this study. The results are detailed below in Table 9.

Table 9.

*Miscellaneous Results*

Miscellaneous							
Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Weighted Average
I felt nervous to communicate in English.	72.22%	20.83%	2.78%	4.17%	0.00%	72	1.39
I felt intimidated to participate in social activities.	38.89%	44.44%	9.72%	5.56%	1.39%	72	1.86
I felt angry that my people were considered inferior there.	44.44%	36.11%	15.28%	4.17%	0.00%	72	1.79
It hurt when people didn't understand my cultural values.	33.33%	45.83%	15.28%	4.17%	1.39%	72	1.94
I felt low because of my cultural background.	68.49%	24.66%	2.74%	4.11%	0.00%	73	1.42
I felt that my status in society was low due to my cultural background.	46.48%	36.62%	12.68%	4.23%	0.00%	71	1.75
I didn't feel a sense of belonging (community) there.	43.06%	33.33%	15.28%	6.94%	1.39%	72	1.9
I felt sad to consider my people's problems.	42.86%	42.86%	14.29%	0.00%	0.00%	70	1.71
I felt some people didn't associate with me because of my ethnicity.	47.89%	33.80%	4.23%	11.27%	2.82%	71	1.87
I worried about my future for not being able to decide whether to stay there or go back.	46.58%	41.10%	4.11%	2.74%	5.48%	73	1.79

**Summary.** The statements, their grouping, and scores in each of the seven subscales: Perceived Discrimination, Homesickness, Perceived Hate, Fear, Stress, Guilt, and Miscellaneous are demonstrated in table above. Below this paragraph is Table 10. This table summarizes the average score in each of the subscales. This table is meant to give a comprehensive view of each of the subscales in one table. These subscales will be further analyzed into themes with the

qualitative data. With a three being the score that is deemed neutral and five being the score in which the participant strongly agreed with the statement, participants had an overall neutral or low level of discomfort to the acculturation process. However, the results were unanticipated. Despite the descriptive statistics revealing that the majority of the participants were American, these participants did not score particularly high in any of the acculturation subjects. Further discussion in Chapter 5 will discuss the interpretation of the findings.

Table 10.

*Summary of the Acculturation Stress Scale for International Students*

Subscales/Themes	Number of Questions	Average	Number of Responses
Perceived Discrimination	8	2.28	558
Homesickness	4	2.72	281
Perceived Hate	5	2.1	349
Fear	4	1.90	278
Stress Due to Change/Culture Shock	3	1.94	209
Guilt	2	2.16	142
Miscellaneous	10	1.78	698

## Qualitative Results

### Data Analysis Method

In addition to the quantitative portion of the survey, three open-ended questions were included at the end of this online survey. These questions were an opportunity for these participants to further describe situations that were not directly addressed in the instrument. It also provided an opportunity for the participants to reflect one last time on their experience, and voice in their own words their own perception of their experience and their perceived level of satisfaction in choosing to pursue their veterinary education in such a unique location.

The analysis of the qualitative data began with the descriptive coding method (Saldaña, 2009). Using the descriptive coding method by summarizing the responses, each of these questions were coded in Survey Monkey. The descriptive coding in Survey Monkey served as the first cycle of coding for the qualitative data. The method of analysis of the first two qualitative and open-ended questions differed from the third qualitative open-ended question once the first cycle of coding was complete. The second cycle of the coding method of the first two qualitative questions consisted of putting the codes into the subscales of the acculturation instrument. These subscales also serve as the themes of this study. This was done by the researcher in a Word document. They were coded in Survey Monkey and then exported into a Word document for the second cycle of the coding method, pattern coding (Saldaña, 2009). These subscales were then placed into one of the themes for the final coding step. The last qualitative question was a yes or no question, so it was not included in the themes for this analysis.

## **Presentation of Results**

Many participants elaborated on their experiences as an international veterinary student in a geographically isolated area. These participants described additional types of stress they experienced during their veterinary academic career. There were five themes that emerged from the qualitative data. The five overarching themes and subthemes were results of the data interpretation of the researcher. Table 11 demonstrates the themes and subthemes that emerged from the qualitative data. The themes are discussed in more detail following the table.

Table 11.

*Qualitative Themes and Subthemes*

<b>Theme</b>	<b>Subthemes</b>
<b>Discriminating Treatment Difficulties</b>	Different Treatment in Service Different Treatment in Social Settings Different Pricing for Students
<b>Economic Challenges</b>	Loan Debt Finances Paying for Things
<b>Safety Concerns Based on Being Targeted</b>	Harassed/Targeted Safety Concerns
<b>Academic Stress</b>	Coursework/Academics
<b>Adapting to the Challenges of Culture Shock</b>	Cultural Differences Lifestyle Problems/Issues Support System Travel Distance Geographic Location

**Theme #1: Discriminatory Treatment Difficulties.** Although a small portion of participants reported not experiencing any differential treated based on their ethnicity, many



examples were provided by participants in which they felt treatment was given to them based on their ethnicity. A participant reported feeling “instances in which locals were rude to me and specifically cited my being American.” Similarly reported by another participant “When on the beach or shopping at the mall I was approached frequently by locals selling goods or asking for money because I am white. Other locals were not approached by the same people.” Another participant summed up their response by stating “The automatic response to my ethnicity was that I owed locals something: money, clothes, other.” Another example provided by a participant stated “Getting a renewed driver's registration was made difficult for those non-natives. They would say all kinds of things were wrong with my car if I took it myself but pass my car if I paid a native to take it for inspection.” Americans were targeted in several of these incidents, “Easily not given same attention when in line for cashier at store or bank. Not nearly as courteous by locals compared to locals.” Another example provided stated, “When socializing with locals, we were definitely treated differently due to our ethnicity.” These incidents are examples of challenges that these international students living in a foreign country faced while attending a geographically isolated program.

**Theme #2: Economic Challenges.** Participants were very vocal about the perceived discrimination they experienced and how it affected their financial transactions with locals. One participant stated “Most when it came to financial situations. Renting cars, apartments, etc. They knew we were ‘American’ students so sometimes . . . NOT ALL . . . but sometimes, rent would be higher because of this fact.” Another participant stated “Locals assumed that since I was white, that I had money to give away.” Yet another stated “When attempting to purchase souvenirs off of the street. Because I was white, the seller would always markedly raise the price of goods.” Another stated “Local, non-tourist types of businesses would change their prices or

obviously ignore me as a customer because I was white and likely a student.” Incidents like these became a consistently reported experience that added economic stress to those who answered this question.

**Theme #3: Safety Concerns Based on Being Targeted.** Participants described incidents in which they were targeted or harassed based on their perceived ethnicity. A participant stated “I was frequently harassed by locals for money outside grocery stores, restaurants, and banks.” Another participant expressed safety concerns when “Locals [were] yelling crude things towards me based on race and sex.”

Incidents where students were robbed also were discussed. One participant described the following incident: “Sometimes locals took advantage of students, or tried to steal because of a perception that we were wealthy so we could afford to lose the items. I let someone into my home out of the heat, and she scoped my place for any pills or valuables (I realized later).”

Another was physically attacked based on ethnicity, “when I was mugged walking down the road at night and yet another stated “. . . my ethnicity made me a target for crime.” Being a woman was also a response provided by one of the participants “The native people placing their cultural sexist expectations on women.” And another example, “[Local] men more strongly harassed foreign women of many ethnicities with unwanted attention.” Yet another example provided an incident that occurred while driving “One time I was attempting to drive to school and there were locals ahead of me blocking the road. I waited for a short time and they never moved, so I honked my horn. The man turned around and yelled, “Fuck you, white girl!” and continued his conversation. I had to turn around and go a different way. Situations like this happened often.” These are just a few of the responses that were perceived as hate and/or discrimination and were part of this overarching theme.

The quantitative data concluded that there was a low level of fear reported by the participants, the qualitative data determined a similar result. However, it was still a cause for stress for international veterinary students enrolled in a veterinary program that was situated in a geographically isolated location. Participants stated “Overall, relatively low stress. Home robbery was the most stressful, being without essential belongings, foreign police, and dealing with replacing” and “Long distance relationship, money and being gay in a country where it is not accepted” and “Someone tried to break in while I was home studying one night.” All are factors that caused them the most stress. There were also responses concerning safety factors that were included in the theme of academic stress which were not addressed in this paragraph but are addressed in other paragraphs.

**Theme #4: Academic Stress.** The literature review demonstrates that it was well known in veterinary medical education that academics is the most reported stress factor for veterinary students. The researcher assumed that the participants would focus more on the goal of the study and focus on the acculturation process and experiences they had while being an international veterinary student in a geographically isolated veterinary program. The fact that this theme emerged as the most frequent was not anticipated. However, it does lead the researcher to understand the importance of the theme over all others. It demonstrated that this was the leading cause for stress in veterinary students regardless of location, but it can be even more challenging when other factors are causing different kinds of stress in veterinary students. Responses like “The heavy academic load and exams caused the most amount of stress” and “The normal demands of veterinary school” and “The amount of material for each class” are all statements that directly state the impact of academics while a veterinary student. However, some of these responses also had other factors that made the academics portion of being a veterinary student

even more stressful. Responses like “The most amount of stress was probably studying for major exams; power outage, or no hot water, or no water at all without warning when studying” and “The work load combined with maintaining a relationship” and “Balancing my sickness, and my studies. Sometimes I was too sick to get to class, but my friends helped by bringing me notes” are all statements that demonstrate that other factors contributed to their academic stress.

Although the theme is academic stress, there were other factors that contributed to their high academic stress levels. One participant wrote,

Fearing for my safety. Having your home broken into after you've only been on the island for a few months is an uneasy feeling. Regardless of the fact that you have a tremendous amount of stress with school and are living with two other girls. It was a very vulnerable feeling. In addition, not feeling like I could go anywhere on my own. I felt trapped. I often said that the experience of vet school in [Retracted] is quite different as a woman vs. as a man. I still believe that.

This type of response demonstrated the perception from a female student’s point of view. She acknowledges the existing and known high level of stress that comes from being a veterinary student and goes on to describe the additional concerns she has based on her gender alone.

Other participants described the underlying pressure of their academic stress by stating “Financial! The fear of not successfully completing the program while remaining responsible for paying loans.” Finances, again, were the underlying stressor when another participant stated “Testing was the most stressful part—vet school is just stressful because you have a lot of money and time invested and if you don’t pass, it is all for nothing.” Although academic stress is the main theme in this section, it is important to recognize that additional underlying issues also

contributed to these participants' experience that made academics even more stressful as a veterinary student.

**Theme #5: Adapting to the challenges of cultural shock.** Although culture shock was a subtheme that was not highly felt quantitatively speaking, qualitatively participants expressed its impact on their experience. These responses demonstrate the cultural adaptation that must take place for the participants in this study; "The inconvenience of certain parts of life that would normally not be a concern in my home country" and "Meeting new people in the program was the next source of stress and learning the new culture is the next on the list of stressors." The cultural shock was also stated in this response, "The inability to impact the way people treated me or circumstances. There was total disregard for personal safety, personal property safety, or ability to have basic services." These are all responses that illustrate the impact of the change of culture that these students experience when they choose a program that is situated in a geographically isolated location.

**Subtheme #1 Geographic location.** Geographic location was identified as a subtheme of culture shock. For many of these international veterinary students, they must travel far to get to their chosen veterinary program. Because of this distance, these international students face additional challenges that would not be an issue if they were to have chosen a AVMA accredited program in a different location. Responses such as "the long flight to and from the school . . . ie., canceled flights, delayed flights, workers on strike" and "Being far from friends and family" and "The limited resources and the financial aspect of living on a remote island (basic food items more expensive than average due to importation)" and "Feeling isolated and the lack of support from family and friends. Being unable to visit them easily or have visitors" are examples of the

geographic location impacting the international veterinary student and even their accessibility to their support systems.

### **Additional Comments from the Researcher**

None of the comments in quotation were altered to be grammatically correct. These were the actual responses from the participants. There were many very insightful responses to the qualitative questions. However, one in particular captured the attention of the researcher. Many participants discussed and addressed more than one factor that caused them the most stress while being an international veterinary student enrolled in a geographically isolated veterinary program. It became clear that many factors were influenced by others. However, the following is a comment that the researcher felt was a great summary of the responses from the qualitative analyzation. The participant stated,

Adjusting to living in a different country. To be completely open, not being spoiled in the USA. Can't run to the store and expect to find what you want, when you want it. But that only happens occasionally and you learn to adapt the more time you spend on the island. Sometimes difficult when a family emergency arises and you can't get off the island because of the airline flights schedules and prices. AGAIN, rare but happens.

This response is one from a veterinary student who is originally from the United States. Given that the majority of the participants in this case study stated their country of origin was the U.S., the researcher felt that it was imperative to include this dynamic response as part of the conclusion.

There are many factors that were highlighted in this section but overall, this participant was sure to include that the more time you spend in the unfamiliar area, the more you adapt to your surroundings. The researcher believes this is important to note, especially for future studies.

If this same study was conducted on current international veterinary students, the results may be different, but surveying them again after they have completed the program may prove the growth that came from a difficult, yet unique experience.

### **Unanticipated Findings**

An unanticipated finding was the overall consensus of the participants regarding their satisfaction with pursuing their veterinary education as an international veterinary student in a geographically isolated setting. The researcher felt that there was the potential for a small portion of the participants to have had ill feelings after voicing some of the negative experiences that occurred while living as an international veterinary student who attended a geographically isolated veterinary program. However, various responses like “Yes!” and “Very Satisfied” proved that reflecting on their experience, it was regarded as positive. Other responses that were still considered positive, but more informative included “Yes, absolutely, I wouldn't have traded that decision for anything. I'm so happy I decided to take the risk and the adventure, it has changed so much in my life because of that decision” and “Absolutely. One of the greatest experiences of my life” and “100% I would do it all over again if I could” and “Yes, I felt I received a good education both in school and in a different culture” elaborate more on the question and provided certainty in their satisfaction level. These results may be different if a larger sample participated or if the sample population criteria included students who transferred out or left the field of veterinary medical education.

## CHAPTER FIVE

### CONCLUSIONS

The purpose of this study was to gain a deeper understanding about the experience international students had while enrolled in a veterinary program located in geographically isolated area. Through reflection, these graduates look back on their experiences throughout their time as international veterinary students and determine how it affected their overall experience. Although it would be useful to gain understanding on how current students feel about their experience, there is a risk that they will react to the most recent event, whether good or bad, and skew data. Without the worries of upcoming exams or backlash for their honest input, these graduates were able to reflect on their experiences as a whole, rather than just a short period of time in which other related or unrelated events might change the perception of their experiences by answering the questions based on their emotional state at the moment the survey was administered. Previous research has noted that veterinary students' depression levels are rising across all three semesters, 49%, 65%, and 69% respectively (Reisbig et al., 2012), which is valuable information, but not the purpose of this particular study.

The significance of this study on this demographic in particular is important to the field of veterinary medicine. Recent studies involving veterinary students have noted that women in the profession typically experience more stress than men (Kogan et al., 2005).

Considering that between 70% and 80% of U.S. veterinary students are female and the demographics of this site and study are comparable, this demographic is of high importance (AAVMC, 2017, Kogan et al., 2005). Furthermore, these graduates were once students of a geographically isolated program. Studies have determined that students who are isolated from their support systems can experience negative effects on their health, mental wellness, and even



their academic performance (Spielman et al., 2015, Arends-Tóth & Van de Vijver, 2006, Edwards-Joseph & Baker, 2012).

As previously mentioned, Reisbig et al. (2012) explained that “impacts of stress in veterinary school may continue to be factors that later contribute to veterinarian suicide” (p. 342). Although this study did not ask the participants information concerning their psychological background or current state of their mental wellness, this is a topic that should be further investigated by researchers with a medical background. Maintaining this information out of this survey ensured that it would be considered a low risk study.

### **Interpretation of Findings**

Although the overall quantitative analysis of each of the seven categories determined that these participants from isolated veterinary programs did not score high in their reflection of their overall experience of acculturation, a few of the quantitative questions and certain groups of people did score higher than others in certain categories. Similarly, the open-ended questions seemed to conflict with the quantitative data. Using the themes provided by the acculturation scale, as well as a few additional themes that came out of this study, the results will be discussed in further detail in this chapter.

### **Perceived Discrimination and Hate**

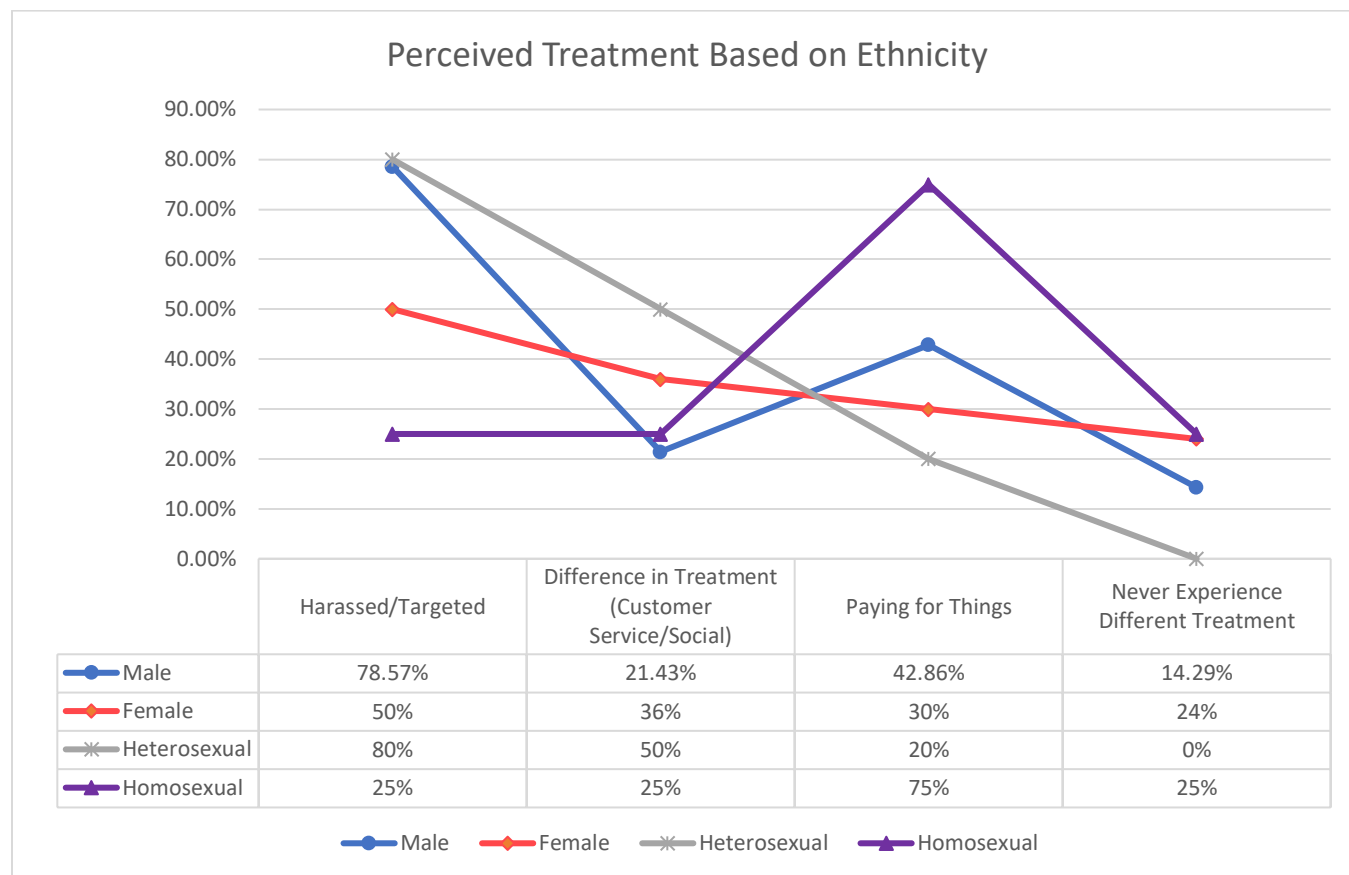
According to Rudmin (2009) “perceived discrimination strongly predicted psychological stress” (p.116). The qualities and quantitative data collected contradicted itself. When addressing the quantitative data, the average score of the questions in the category of perceived discrimination was 2.28, and 2.1 in perceived hate, meaning most participants did not perceive discrimination or hate while living in this location. With an average of 70 responses per question in these categories, overall these participants did not perceive discrimination or hate. On the

contrary, the qualitative question presented a different outcome. Of the 64 participants who answered the open-ended question about being treated differently because of their ethnicity, 78% of participants felt that they were treated differently based on their ethnicity. Furthermore, 56% of answers provided were incidents in which the participant felt harassed or targeted because of their ethnicity.

When including the descriptive statistics along with the quantitative data, heterosexuals (2.75) and females (2.36) felt the highest rate of perceived discrimination and again, heterosexuals (2.24) and females (2.11) felt the highest rate of perceived hate. However, males perceived the lowest rate of discrimination (1.30), while homosexuals perceived the lowest rate of hate. However, it is important to note that literature dictates that female students are more likely to discuss their emotional states when compared to men, which could explain the higher scores in these themes when it came to females (Archer et al., 1998).

Comparing the descriptive statistics with the qualitative data, 80% of homosexuals reported feeling targeted. It is important to note that only four participants who answered this question identified themselves as homosexuals. With 14 men answering this question, more than 78% experienced different treatment based on their ethnicity, whereas the quantitative data determined that males felt the lowest rate of discrimination, the opposite of what the quantitative data revealed. An additional note by the researcher: some responses were lengthy and had one or more codes. Table 7 details the qualitative information yielded by descriptive statistics and responses regarding treatment based on ethnicity.

Figure 5. Perceived Treatment Based on Ethnicity



There is a possible reason for these findings. Despite the high rate of homosexuals not experiencing different treatment based on ethnicity, they may have experienced different treatment based on sexual orientation. Furthermore, with only four responses to this question, the data may not be representative of this demographic as a whole.

### Homesickness

Stress is part of the academic experience, as well as the acculturation process. Acculturation can cause two kinds of stress: distress and eustress (Rudmin, 2009). The same amount of stress can be caused by a happy event, such as planning a wedding, and a difficult event, like a death in the family. This means that stress can be more of a motivation in some,

while in others, it can be debilitating (Gelberg & Gelberg, 2005). In the quantitative portion of the survey, the average score of the questions in the category of homesickness averaged the highest (2.72). Comparing this information to the descriptive statistics, heterosexual participants had the highest rating (3.02) and the homosexual participants scores the lowest (2.4). On average, male participants (2.95) tend to have a higher rate of homesickness when compared to female participants (2.71). Homesickness has been determined as a contributor to increased levels of anxiety and depression, which can negatively impact a student's academic performance (Drake et al., 2014). This may be why the academics identified as the stressor in the qualitative portion of the survey caused the most stress in the students' time in the program. A study of international college students found that 30% of international college students report being homesick, adding that homesickness contributes to a student's stress level and can negatively impact a student's academic performance, and in extreme cases, lead to suicide (Kegel, 2009).

### **Fear**

Fear is another part of the acculturation process that was measured, having the lowest average score of all the acculturation categories (1.90), with the exception of the miscellaneous group of question (1.78). However, heterosexuals scored the highest in the questions regarding fear (2.33) while homosexuals scored the lowest (1.7). Males also scored higher (2.00) than females (1.87), on average, when it came to fear. The acculturation process is less stressful if the student feels safe in their new environment (Poyrazli et al., 2010). According to this quantitative data, the participants felt safe in this environment, meaning that this was not a factor in their acculturation process.

### **Stress Due to Change and Culture Shock**

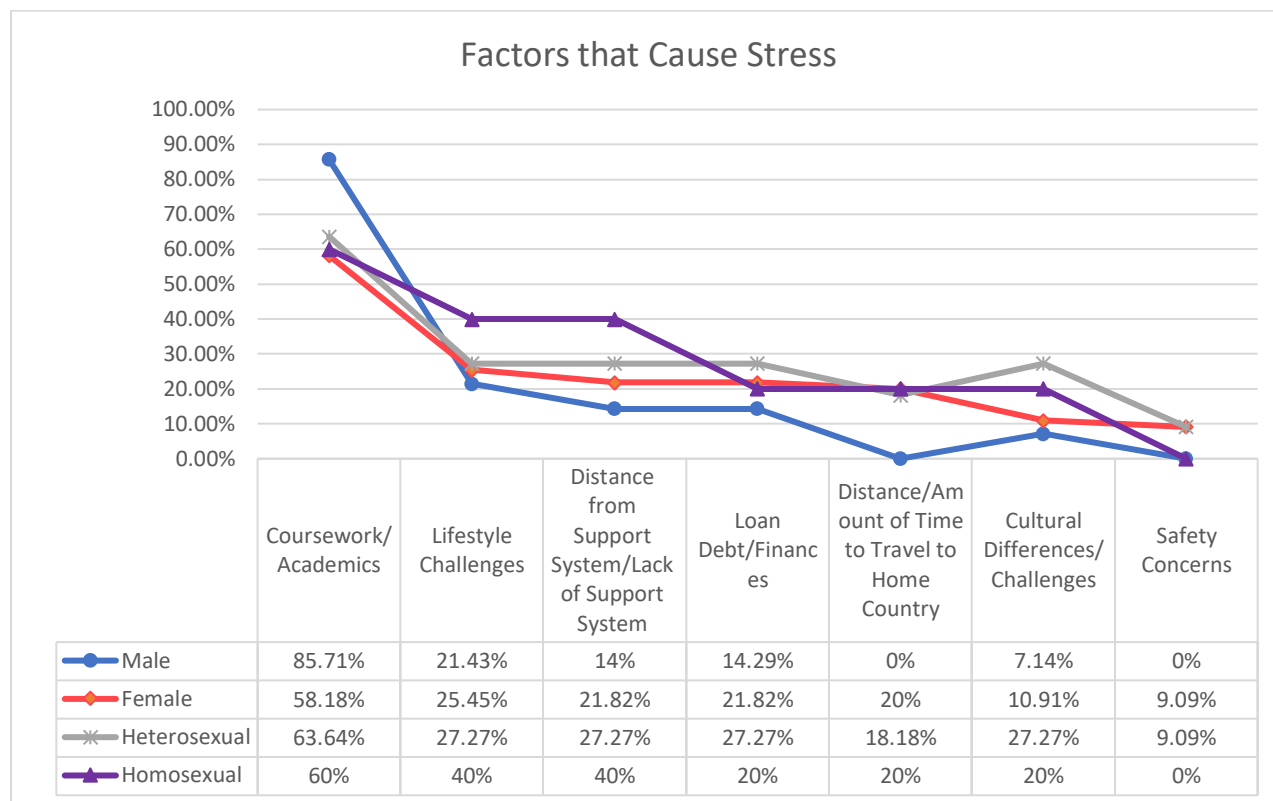
Stress due to change and culture shock is another set of questions included in the acculturation portion of the survey. According to the quantitative data collected, males, on average, experienced a higher rate of stress due to change and culture shock (2.33) than females (1.85). However, homosexuals, on average, scored the lowest in this category (1.73).

The quantitative data once again paints a different picture than the qualitative information gathered in this survey. When asked what factor caused the most stress while these participants were students, every group of participants had the most responses stating coursework load or academic pressure. Although academics were not part of the acculturation process, it is evident that it was the stressor that most affected students who attended this geographically isolated program. However, feelings of isolation are part of the acculturation process (Rudmin, 2009).

These themes are all under the heading of stress because each of these themes is a known factor of stress. Homesickness, which leads to cultural stress, can also impact students who report feeling segregated or discriminated against (Thomason et al., 2006, Kegel 2009). These negative and damaging feelings can result in a negative impact in a student's academic performance, as well as result in psychosocial consequences (Thomason et al., 2006, Kegel 2009), which can also influence why so many participants reported academics as their main stressor while a veterinary student.

Figure 5 depicts the themes present in the open-ended questions in the survey. It is important to note that only five participants who identified as homosexual answered this question, which may not be an accurate representation of this demographic.

Figure 6. Factors that Cause Stress



### Perceived Satisfaction

There were no perceived satisfaction questions in the quantitative acculturation portion of the survey. However, there was an open-ended question at the end of the survey for the participants to express, in their own words, whether they were satisfied with their decision to attend a geographically isolated veterinary program as an international student. Figure 6 depicts the answers to this question. Interestingly, the participants who answered yes were mostly worried about their student debt. Once again, workload and financial debt are known stress factors that negatively impact perceived satisfaction levels of veterinary students (Drake et al., 2012, Collins & Foote, 2005, Pickles et al., 2012). Similar to this study, a previous study concluded that American veterinary students viewed their experience in a positive way, even though 51% of students felt the coursework was excessive (Powers, 2002).

Figure 7. Perceived Satisfaction



### Implications

The culture of this location, as well as its distance, is something that greatly affects the students who attend this program. Furthermore, academics and financial issues were of concern, despite the positive reaction to their experience. Although the acculturation process quantitatively presented low results, the qualitative portion of the survey revealed information that contradicted the quantitative instrument but elaborated on the experiences and the overall perceived satisfaction of these participants.

Although the overall purpose of this study was to measure and understand the impact of acculturation on these graduate students, the stress factor most discussed in the qualitative question portion of the survey was academics. Workload is mentioned by other studies as the main stressors for veterinary students (Collins & Foote, 2005; Gelberg & Gelberg, 2005; Picket

et al., 2012; Miller et al., 2015; Sutton, 2007). While two-thirds of veterinary students were overwhelmed with the curriculum and over 70% stated they were worried about their academic performance hindering their graduation, along with the competitive nature of the program itself, curriculum design may be something to further investigate (Collins & Foote, 2005). Previous studies have also provided evidence that the type of student who is accepted into a veterinary program must be competitive and high-achieving, which makes it difficult for them to admit to weakness, increasing levels of stress and ultimately, the need for their support system and/or psychological services (Pickles et al., 2012). Furthermore, this study resonates with another that determines that the majority of veterinary students experience stress from more than one source, which is evident by the themes in this study (Collins & Foote, 2005).

### **Recommendations for Actions**

Academic performance, mental health changes and social attitudes, and even suicide can be a result of acculturation stress (Arends & Vijver, 2006). Although graduates quantitatively reported low impact of acculturation stress while enrolled in this veterinary program, qualitatively these same participants did discuss experiences when they were feeling the effects of the acculturation process. Suicide and mental illness have been associated with extreme culture change (Kegel, 2009, Rudmin, 2009). Enabling psychological services that are easily accessible to these students can help them deal with the stressors that normally would be dealt with by their support system. Providing accessible psychological services to these students is especially important because of their geographical location (Pickles et al., 2012).

Including questions about the participants' mental health could help target students who may have trouble adjusting. Studies have proven that if mental illness or poor health is already present in the student, the acculturation process can have a negative effect (Rudmin, 2009).



Furthermore, the psychological response to homesickness is similar to grief (Archer et al., 1998). With 93% of veterinarians supporting euthanasia in humans when confronted by the idea of ending suffering in a living being (Whitcomb, 2010), this may explain the rise of the rate of suicide in the field of veterinary medicine, suggesting that teaching veterinary students about coping may help reduce mental distress. With the increase of mental health problems in veterinarians, many veterinary schools have begun including mental wellness in their curricula (Celenk & Van De Vijver, 2011, Poyroyrazli et al, 2010). Introducing elements to the curriculum to help these future professionals manage grief effectively can help their overall psychological mental health as a student and later as a professional (Collins & Foote, 2005; Reisbig et al., 2012).

### **Recommendations for Future Studies**

There are many suggestions for future studies, one of which is using this exact survey and distributing it to the current students of the program. Many studies have determined that veterinary students' anxiety and depression levels increased as they progressed in the program (Miller et al., 2015). Furthermore, an interview style study could reveal even more about the process and enable richer data for analysis.

A few participants reached out to provide their own input via private messaging in social media, which was welcomed by the researcher. Participants are more willing to reach out via social media to provide further discussion (Gunn, 2017). One suggestion, repeated by multiple participants, was to measure the acculturation levels of the students attending their clinical training. Gathered from discussion with these individuals, it seems that the time at their clinical site is more of a culture shock than the time spent in the geographically isolated area that the veterinary program is located in. A possible reason given to the researcher was because they are

entering a program that has an already established set of students who have spent years together in the same program and they are entering as a temporary outsider. They come in with different experiences and educational backgrounds than those who are already there. In a short time, they are expected to adapt to a new location and, in most cases, culture, and still perform adequately in their clinical skills.

Furthermore, this study was completed by the graduates of this program. There have been many students who left throughout the program. Although no exit surveys have been conducted on the reason(s) why these students chose to transfer out or leave the field of veterinary medical education entirely, conducting an investigation into the many reasons why students chose to leave would provide additional information for potential other related studies. Possible reasons students leave could be lack of interest in the field of veterinary medicine, the location or culture shock of the location of the program, health reasons, personal reasons, or the inability to adapt to the immediate change that a rigorous program brings to their life.

### **Conclusion**

There are three potential reactions to acculturation: Acceptance, Adaptation, and Reaction (Rudmin, 2009). This group of graduates went through all three of these reactions and, upon reflection, have chosen to take their positive experiences from it. Acculturation has positive effects, too. Immersing oneself into a new culture can increase self-discovery and personal growth (Rudmin, 2009). One comment from a participant stated, “I am highly satisfied. If I get the chance to do it again, I will [Retracted]. I’m a better person living 3 years in a foreign country, learned so much and now appreciate life more because of it. For sure was more expensive to study there but the experience is priceless and hope one day I’m able to pay off my student loan.” Although these participants were not asked about their academic performance, it is

proved that a potential outcome of the acculturation process is that it may be detrimental to a student's academic performance (Arends-Tóth & Van de Vijver, 2006; Edwards-Joseph & Baker, 2012). It is possible that not having gone through the acculturation process, this student, among others, may have performed at a different level of competency at a program located closer to home.

With demographics changing and generational differences coming into play, the needs of these students, as well as future students, are always changing. Millennials, for example, require constant feedback (Reisbig et al., 2012). Women joining this profession may feel overloaded, trying to balance their work and personal lives (Gelberg & Gelberg, 2005). Because females are more likely to have mood disorders when compared to their male counterparts, the shift in demographics is especially important to note (Hafen, 2011). According to a recent study, two-thirds of veterinarians who have a history of suicide ideation have considered leaving veterinary medicine but fail to do so because of the lack of alternative career options (Cardwell, et al., 2011). Providing additional information on alternative careers that can be pursued with this level of education may help future students, including women, find a higher level of satisfaction in their decision to pursue veterinary medicine.

International students have been subjected to additional stressors because of culture shock and adaptation (Poyazli et al., 2010). Language is an essential aspect of acculturation that can cause stress (Arends & Vijver, 2006). Fortunately, the official language of these AVMA accredited programs located in remote locations is English, much like the majority of participants' countries of origin; however, distinct dialects should not be ruled out and can be very difficult to understand. As noted in the qualitative portion of the survey, past students have experienced symptoms of the acculturation process but it seems to have not affected their overall

satisfaction levels. Perceived discrimination and financial stress contribute to elevated acculturation stress, which are factors that were reportedly causing uncomfortable situations for these students and difficulties in current and future financial situations (Rudmin, 2009).

As discussed throughout this dissertation, changes need to be made in the field of veterinary medical education. Studies regarding stress and its impact on veterinary students have been conducted all over the world (Drake et al., 2017). Among these studies, the psychological effects that veterinary students experience and their perception of their overall well-being and mental health have been noted, discussed, and plans for the implementation of changes are in the works (Cardwell & Lewis, 2017). Furthermore, these studies also identified the factors, both academic and nonacademic, that caused stress levels to elevate among veterinary students (Bakker et al., 2017; Drake et al., 2017). Social, financial, academic, and personal factors have all been cited as contributors to psychological distress in veterinary students (Collins & Foote, 2005; Cardwell & Lewis, 2017). The suicide rate of veterinarians is rising and is becoming more of an issue in veterinary students. Combating the negative perception of seeking counseling services by including them as part of the curriculum can also help students in the short and long term. The isolated and distant locations of these programs, as well as the various program structures, make the experience of an international student one that would need unique changes that may not be applicable to every institution.

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APPENDIX A  
EMAIL FROM DR. DAYA SINGH SANDHU GIVING CONSENT  
TO USE INSTRUMENT IN THIS CASE STUDY

---

From: Dr. Daya Singh Sandhu <sandhud@lindsey.edu>  
Sent: Tuesday, July 11, 2017 3:52 PM  
To: Sherry Bushong  
Subject: Re: Fw: Acculturative Stress Scale for International Students  
Attachments: ASSIS-Final.doc; Acculturative Stress Scale for International Students- Dr. Daya Singh  
Sandhu - Copy.pdf

Dear Ms. Sherry Bushong,

Thank you for your interest in my publications and research activities. As requested, you have my permission to use Acculturative Stress Scale for International Students to complete your dissertation research. I am attaching the following for your review and use:

1. An original copy of the scale.
2. A copy of my article published in the Psychological Reports..

If you have any questions, please feel free to contact me at [Sandhud@lindsey.edu](mailto:Sandhud@lindsey.edu). You may also feel free to contact me at (502) 9312158 (cell) if necessary.

With my best wishes!

Sincerely,

Dr. Daya Singh Sandhu, Ed.D., NCC, NCCC, NCSC, LPCC

[Sandhud@lindsey.edu](mailto:Sandhud@lindsey.edu) or [Dayasandhu13@hotmail.com](mailto:Dayasandhu13@hotmail.com)

On Tue, Jul 11, 2017 at 3:14 PM, Sherry Bushong

<sbushong@une.edu> wrote:

Hello again Dr. Sandu,

I appreciate you taking time to call me and discuss my dissertation.

I have attached the original email I sent you regarding my dissertation.

Thank you again for allowing me to use your instrument in my study.

Sincerely,

Sherry Bushong

---

From: Sherry Bushong

Sent: Thursday, June 15, 2017 1:23:34 PM

To: sandhud@lindsey.edu

Subject: Acculturative Stress Scale for International Students

Hi Dr. Sandhu,

My name is Sherry Bushong [Retracted]. I am also a full time doctoral student pursuing an Ed.D. from University of New England.

I am beginning the process of putting together my research proposal for my dissertation. I have been researching nonacademic/academic stress factors that affect veterinary students.

[Retracted].

I came across your work while doing research on my topic for my dissertation[Retracted].

I am writing to you for permission to use your Acculturative Stress Scale for International Students as part of my research and work toward my dissertation.

If you need any additional information from me, about me or my institution(s), please let me know.

I appreciate you taking time to consider my request.

Thank you again,

Sherry Bushong BA, BS, MA, MS

USA Contact Number [RETRACTED]

## APPENDIX B

**An Acculturative Stress Scale for International Students**

Directions: As foreign students have to make a number of personal, social, and environmental changes upon arrival in a strange land, this cultural-shock experience might cause them acculturative stress. This scale is designed to assess such acculturative stress you personally might have experienced. There are no right or wrong answers. However, for the data to be meaningful, you must answer each statement given below as honestly as possible.

For each of the following statements, please circle the number that BEST describes your response.

1= Strongly disagree, 2= disagree, 3= not sure, 4 = agree, 5 = strongly agree

Because of my different cultural background as a foreign student, I feel that:

- |   |           |
|---|-----------|
| 1. Homesickness for my country bothers me.                                    | 1 2 3 4 5 |
| 2. I feel uncomfortable to adjust to new foods<br>and/or to new eating habits | 1 2 3 4 5 |
| 3. I am treated differently in social situations.                             | 1 2 3 4 5 |
| 4. I feel rejected when people are sarcastic toward my<br>cultural values.    | 1 2 3 4 5 |
| 5. I feel nervous to communicate in English.                                  | 1 2 3 4 5 |
| 6. I feel sad living in unfamiliar surroundings here.                         | 1 2 3 4 5 |
| 7. I fear for my personal safety because of my different                      | 1 2 3 4 5 |



cultural background.

- |  |           |
|--|-----------|
| 8. I feel intimidated to participate in social activities.   | 1 2 3 4 5 |
| 9. Others are biased toward me.  | 1 2 3 4 5 |
| 10. I feel guilty to leave my family and friends behind.   | 1 2 3 4 5 |
| 11. Many opportunities are denied to me.   | 1 2 3 4 5 |
| 12. I feel angry that my people are considered inferior here.  | 1 2 3 4 5 |
| 13. I feel overwhelmed that multiple pressures are placed<br>upon me after my migration to this society. | 1 2 3 4 5 |
| 14. I feel that I receive unequal treatment.   | 1 2 3 4 5 |
| 15. People from some ethnic groups show hatred toward<br>me nonverbally.                                 | 1 2 3 4 5 |
| 16. It hurts when people don't understand my cultural values.  | 1 2 3 4 5 |
| 17. I am denied what I deserve.  | 1 2 3 4 5 |
| 18. I have to frequently relocate for fear of others.  | 1 2 3 4 5 |
| 19. I feel low because of my cultural background.  | 1 2 3 4 5 |
| 20. I feel rejected when others don't appreciate my cultural<br>values.                                  | 1 2 3 4 5 |
| 21. I miss the country and people of my national origin.   | 1 2 3 4 5 |

22. I feel uncomfortable to adjust to new cultural values. 1 2 3 4 5
23. I feel that my people are discriminated against. 1 2 3 4 5
24. People from some other ethnic groups show hatred  
toward me through their actions. 1 2 3 4 5
25. I feel that my status in this society is low due to my  
cultural background. 1 2 3 4 5
26. I am treated differently because of my race. 1 2 3 4 5
27. I feel insecure here. 1 2 3 4 5
28. I don't feel a sense of belonging (community) here. 1 2 3 4 5
29. I am treated differently because of my color. 1 2 3 4 5
30. I feel sad to consider my people's problems. 1 2 3 4 5
31. I generally keep a low profile due to fear from other  
ethnic groups. 1 2 3 4 5
32. I feel some people don't associate with me because of  
my ethnicity. 1 2 3 4 5
33. People from some other ethnic groups show hatred  
toward me verbally. 1 2 3 4 5
34. I feel guilty that I am living a different lifestyle here. 1 2 3 4 5

35. I feel sad leaving my relatives behind. 1 2 3 4 5

36. I worry about my future for not being able to decide 1 2 3 4 5

whether to stay here or to go back.

\* Copyrights, 1994 by Dr. Daya Singh Sandhu & Dr. Badiolah R. Asrabadi. All Rights Reserved. Please don't copy or adapt these statements without the written permission of the authors.

### Scoring

The total scores range from 36 to 180 on this scale. Higher scores indicative of greater acculturative stress perceived by the subjects. The scores on six subscales can be computed by adding the individual scores on the relative items. These items can be identified as follows:

1. Perceived Discrimination Items: 3, 9, 11, 14, 17, 23, 26, 29

2. Homesickness Items: 1, 6, 21, 35

3. Perceived Hate Items: 4, 15, 20, 24, 33

4. Fear Items: 7, 18, 27, 31

5. Stress Due to Change/Culture Shock Items 2, 13, 22

6. Guilt 10, 34

7. Miscellaneous 5, 8, 12, 16, 19, 25, 28, 30, 32, 36\*

\* These items are important because they address the special concerns of international students; however, they do not fall under one particular factor.