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# PERCEPTION OF STRESS IN VETERINARY MEDICINE STUDENTS

CÉSAR ALFONSO MUÑETÓN GÓMEZ, FERNANDO GUSTAVO MELO GARCÍA,
MAYRA ALEJANDRA MOLINA CLAVIJO, IVÁN MERCHÁN LOPERA
Universidad de La Salle, Colombia

KEY WORDS

*Stress*
*Cortisol*
*Anxiety*
*Prevalence*

ABSTRACT

*The objective of the present study was to identify the main symptoms of stress perceived by students of an anatomy group in Veterinary Medicine school at the University of La Salle in Bogotá, Colombia, during the year 2018. For this, 97 students were surveyed, and the responses were estimated on a 5-point Likert scale. Subsequently, the results of each question were classified as normal, moderate, and severe stress. The results showed that the greatest symptoms of stress are found in women, while the symptoms found more frequently match with those reported in the adolescent population, such as changes in appetite, cold sweat, tingling sensation, tachycardia, and stomach discomfort. Emotional manifestations include feelings of irritability, fear, worry, anxiety, overwhelm, apathy, sleep, and indifference. The findings show that a substantial proportion of the students surveyed perceive symptoms of stress and anxiety at different levels. The prevalence of symptoms of severe depression found exceeds that reported nationally and internationally, while moderate depression occurs within the internationally described ranges.*

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GLOBAL KNOWLEDGE ACADEMICS

## 1. Introduction

Stress is a physiological reaction of the organism to situations that are perceived as threatening or that demand an increased effort, the term has become a common word within our current society (Martín, 2007). Stress generates changes associated with the sympathetic nervous system, such as increased heart rate, dilated bronchial tubes, decreased secretion of salivary glands, increased blood pressure, mydriasis, and slowed digestive processes (Casafont, 2012). In addition, stress has been defined as a process in which demands exceed the body's ability to adapt, resulting in psychological and biological changes that can increase people's risk of suffering from diseases (Abdel and Hassan, 2017).

The effects are produced by the release of cortisol, generally, the secretion of this hormone produced by the adrenal gland, increases significantly after waking up due to the need to generate energy sources after long hours of sleep, also increases at dusk as the arrival of night produces this effect. The increase helps the body to balance the insulin to keep the blood sugar at the right level and thus get energy. It also helps regulate blood pressure and the immune system.

The problem occurs when cortisol levels remain high for too long, since it affects the homeostatic balance, producing cardiovascular, nervous, and digestive disorders, among others. However, anxiety is an emotional reaction involved in the stress processes to adverse events or anticipated dangers. According to Celis et al. (2001), there is a level of anxiety that is considered normal and even useful, it is called emotional threshold and it allows to improve performance and activity. However, when anxiety exceeds certain limits, a deterioration in daily activity appears. In this case, the greater the anxiety, the lower the performance, which is a starting point for stress disorders.

Even so, there are various definitions of stress in the research literature. For example, according to Moscoso (1998), Claude Bernard considered that the characteristic of stress was the stressful stimuli or situations, while Walter Cannon stated that what was important was the physiological and behavioural response. Currently, the approaches to stress are located in the works of the physiologist Hans Selye (1974), which developed a model of multiple stress, it includes both the characteristics of the physiological response of the body to stressful demands, as well as the harmful consequences at the organic level that can produce exposure to excessive or prolonged stress.

In the same way, Hans Selye exposes his well-known concept of physiological activation to stress called "General Adaptation Syndrome", which included responses mediated by the hypothalamus-pituitary-adrenal axis and other hormonal responses, comprising three consecutive phases: 1) alarm reaction; 2) resistance phase; 3) exhaustion phase (Sandi and Calés, 2000). Subsequently, in the face of attempts to define stress by focusing either on inductive stimuli or on induced responses, some psychologists have offered integrative solutions in which "stress" is considered both the inciting stimuli and the reactions themselves and the various processes that mediate such interaction. These theories, developed mainly by Lazarus (1999), are known as interactive or transactional theories of stress and are the ones that have received the most support.

In essence, from the interactionist idea to the present day, not only the physiological responses of the organism are taken into account, but also the numerous biological manifestations as well as the environmental and social characteristics (Acosta, 2002). Thus, according to data from the WHO, the prevalence of depression associated with stress reaches 8% in young people, in addition, 80% of the patients with chronic diseases suffer from depression at some point in their lives. However, only a small percentage is diagnosed, therefore, stress associated depression could be considered by 2020 the second cause of disability in industrialized countries, according to the projection of the PAHO/WHO study (1998). Other studies have found that the prevalence of mild depression ranges from 9 to 24%, moderate depression from 5 to 15%, and severe depression from 2 to 6% (Riveros et al., 2007, Eisenberg & Golberstein, 2008). It can also be noted that in the majority of the studies the prevalence of symptoms in the female gender is evident,

however, the results may be influenced by the greater number of women who participated.

In Colombia, the prevalence of depression in 2003, according to the latest National Mental Health Study (2015) was 13.9%, anxiety disorders 19.3%, and suicide attempts 4.9%. In 2015 the prevalence of moderate depression episodes was 8.5% for men and 14.4% for women. While the symptoms of major depression it was found an incidence of 0.8% in men and 1.3% in women.

Similarly, Orlandini (1999) states that from preschool to graduate school, when a person is in a period of learning, he or she experiences tension producing stress, this symptomatic manifestation is known as academic stress and occurs during both, individual and group/classroom study. The stage of the life cycle in which most undergraduate university students find themselves is late adolescence, and it's right there that some mental health problems that did not occur with frequency during the early stages of life are accentuated, such as mood and anxiety disorders, become more pronounced. Additionally, the higher academic demands present in higher education are recognized by students as one of the factors that generate higher levels of stress (Cova, 2007).

In fact, the university population states depression and anxiety among the main reasons for consulting psychological care in university counselling offices. Along the same lines, the prevalence of depression reported by multiple studies in the university population ranges from 25% to 50%, and this is determined in part by the different instruments used to measure it (Miranda et al, 2000). In addition, depression can be assessed based on the subject's perception of him/herself, the tasks intended to carry out, the attitudes, interests, expectations, and the different mental representations generated about the type of goals intended to achieve within an educational context. All of these factors that guide the student's academic behaviour are also influenced by contextual variables of unquestionable importance within the teaching-learning process, such as the contents, the teacher, the messages he/she transmits, the type of interaction, the evaluation system, the access to information and its management, among others (Valle et al. 1999).

Incidentally, the academic environment is characterized by a series of stress-generating demands (Barraza, 2014; Menéndez, 2010). These include compulsory or group work, lack of time to fulfill academic obligations, academic overload, excessive study material, exams, class participation, and presentations. Academic stress, therefore, refers to situations implicit in the educational process that is not controlled by the student and that may contribute to the development of cardiovascular, muscle-skeletal, reproductive, sleep, and/or behavioural disorders (PAHO/WHO, 2016)

Awé et al., (2016) show evidence indicating that high levels of stress impact negatively on academic performance and that overloading, in addition to long hours of study, exams, grades, lack of free time, and difficulty of work are the causative factors of such stress. In addition, Saleh, Camart, and Romo (2017) state that most university students show high levels of stress, psychological distress, and low levels of self-esteem, optimism, and self-efficacy. Also, García and Zea (2012) point out that stress is multicausal and that the theory that best supports it is based on the cognitive systemic model, which dictates that various stressors in the educational context can unbalance the homeostasis of the student-academic environment relationship.

Likewise, the results of the National Survey of University Counselling Centres conducted in the United States and Canada in 2014 indicated that mental health problems, such as clinical depression, anxiety disorders, and psychiatric problems, have increased over the past five years among American college youths (Gallagher, 2014). Similarly, in Peru, a study of 198 university students found that the main psychological reactions to academic stress were anxiety, concentration problems, restlessness, and feelings of depression and sadness (Boullosa, 2013). In terms of physical manifestations, sleepiness or need for rest, permanent tiredness, difficulty in sleeping, palpitations, restlessness, inability to relax, irritability, digestive problems, among others, stand out. In addition, psychological symptoms are the most prevalent, followed by physical and behavioural symptoms (Barraza, 2014; Boullosa, 2013), which can lead

to attending meetings where there are alcohol and drug consumption and casual sex, as mechanisms to relax and cope with stress.

In this way, different investigations coincide in that the university stage is characterized by being highly stressful due to academic and financial along with the social level and interaction that young people have (Brougham et al. 2009; Dusselier et al. 2005; Chau & Van, 2005). Similarly, Barra (2003) points out that any change in oneself is potentially stressful, especially those that alter people's lifestyles. In this way, the university stage can represent a particularly sensitive time, due to academic pressures and demands, ineffective study habits, inadequate time organization, vocational indecision, concern for the future, among others (Cassaretto et al., 2003; González & Landero, 2007; Lee & Kim, 2015). The above is not only a manifestation of western students, as studies have also shown high levels of stress and depression in Chinese university students (Chen et al., 2009; Chen et al., 2013).

Finally, it should be mentioned that most studies consulted show differences according to sex and age in university students who perceive stress (Jones, Mendenhall and Myers. 2016; Dyrbye, Thomas, Shanafelt. 2006). At the same time, it has been found that it is women who report higher levels of stress compared to men (Barra, 2009; Menéndez, 2010; Rice & Van, 2010). Similarly, differences are also found according to career, such as that found in veterinary medicine students, who have shown a higher risk profile with respect to perceived stress compared to other undergraduate students (El Ansari et al., 2014).

## 2. Materials and methods

A non-experimental, exploratory, quantitative, descriptive study was conducted. A survey designed by the authors covering 17 physical and mental symptoms related to stress and their perception was conducted on students during the last three months of the semester. The aim of the survey was to assess the degree to which the students surveyed valued manifestations that could stress them or make them feel stressed. Participation was voluntary, to ensure respect for the rights of participants, it is assumed that such participation evidenced the student's consent to participate in the study. Responses were estimated on a 5-point Likert-type scale (1 = never, 2 = sometimes, 3 = quite often, 4 = almost always, 5 = always). Subsequently, the result of each of these questions was classified as normal stress (never), moderate stress (quite often), or severe stress (almost always, always).

The population consisted of 97 students, 72 (74%) of whom were women and 25 (26%) men. The subjects included in the study were students in the second and third semesters of the veterinary medicine program offered by the University of La Salle in Bogotá. During the collection of data, the usefulness of the research was explained, a commitment was made to maintain the confidentiality of personal information, and they were present during the application to give instructions and respond to questions to resolve doubts. Data collection was carried out in a single session. The average age of the students was 19.4 years. The study was conducted during the month of November 2018.

The survey questions were designed based on the 2015 National Mental Health Survey, which in turn applies the SRQ questionnaire designed by the World Health Organization WHO as a strategy to expand mental health services.

## 3. Results

For the analysis, the answers “never” and “sometimes” were considered within the mild range, “quite often” in the medium range, and “almost always” and “always” in the severe range. After analysing the surveys, it was found that the majority of the population (70%) perceives levels of anxiety or mild stress, another 18% perceives a moderate level of stress, and that 12% of the surveyed population perceives severe symptoms. In the case of the students classified with severe symptoms of stress, 59% were women and 41% were men. On the other hand, in the students classified with severe symptoms, the highest rate was presented in the answers of the sensation of drowsiness and the need to sleep more hours (36%), followed by 23% who expressed restless feelings and difficulty to relax and to be calm, 22% who suffer from frequent headaches, 18% who feel excessive exhaustion and 16% who present

feelings of aggressiveness or are easily irritable. The percentages found for each of the symptoms surveyed can be seen in table 1.

Table 1. Percentage of depressive symptoms found in veterinary medicine students, Bogotá, Colombia November 2018.

| Stress symptoms | Mild (%) | Moderate (%) | Severe (%) |
|---|---|---|---|
| Inability to relax and be calm | 52 | 25 | 23 |
| Loss of appetite | 79 | 14 | 7 |
| Chest tightness | 70 | 22 | 8 |
| Palpitations, tachycardia | 79 | 16 | 5 |
| Feeling of sadness | 68 | 18 | 14 |
| Presence of tics, muscle cramps | 77 | 17 | 6 |
| Increased activity | 55 | 34 | 11 |
| Nausea, dizziness, unsteadiness | 90 | 8 | 2 |
| Effort to reason and stay calm | 72 | 18 | 10 |
| Tingling or numbness of the hands | 79 | 14 | 7 |
| Digestive discomfort, abdominal pain | 74 | 15 | 11 |
| Headaches | 68 | 10 | 22 |
| Drowsiness or increased need to sleep | 44 | 20 | 36 |
| Exhaustion or excessive fatigue | 70 | 12 | 18 |
| Feelings of aggression or increased irritability | 73 | 11 | 16 |
| Drinking or smoking | 61 | 28 | 11 |
| Anxiety, greater predisposition to fears | 74 | 19 | 7 |

Regarding the presentation of symptoms, the responses classified as severe (almost always and always), it was found that the female sex reported the highest number, this being consistent with the results from the consulted literature. The percentages obtained are shown in table 2.

Table 2. Percentage depression symptoms by gender, found in veterinary medicine students, Bogotá (Colombia) November 2018.

| Number of Symptoms | Male (%) | Female (%) | Total (%) |
|---|---|---|---|
| 2 | 4,1 | 17,5 | 21,6 |
| 3 | 2,1 | 8,2 | 10,3 |
| 4 | 3,1 | 2,1 | 5,2 |
| 5 | - | 3,1 | 3,1 |
| 6 or more | 1,0 | 9,3 | 10,3 |
| Total | 10,3 | 40,2 | 50,5 |

## 4. Discussion

The symptoms reported are consistent with those obtained from the literature consulted on the adolescent population, such as changes in appetite, cold sweats, tingling sensation, tachycardia, and stomach discomfort. Emotional manifestations include feelings of irritability, fear, worry, anxiety, overwhelm, indecision, uncertainty, and anger. These symptoms are common in young college students, but there is no doubt that academic stress is increasing in the lives of students and these are becoming more aware of the importance of their wellbeing. In fact, the most relevant results obtained from the survey support this statement.

The assumptions obtained in this study, besides making evident a common problem in the life of university students, should allow the institutions of higher education through their university welfare centres to continue proposing different approaches for the management of these problems. In accordance with the above, it is also important to advance research processes that allow for the determination of the evolution of this problem over time. Likewise, more studies need to be carried out to identify other factors associated with academic stress.

Given that the symptom with the highest incidence corresponds to drowsiness and the need to sleep, it is suggested that universities have adequate places where young people can recover during the day, in the spaces between classes, since according to the National Sleep Foundation, a short nap, of 20 to 30 minutes, can have the following advantages: increase the level of alertness, improve performance and motor skills, improve the ability to pay attention and lower stress.

## 5. Conclusions

The findings related to the prevalence of stress symptoms in veterinary medicine students are similar to those reported in the literature, with a prevalence of 69.9%, where depression was mild. In the same way, a higher prevalence of symptoms was found among females, agreeing with different views reported in the literature, which have determined that the psych-anatomical structure and some social factors can make the female gender more sensitive to some symptoms.

The results show that a substantial proportion of veterinary medicine students surveyed suffer from depression, stress, and anxiety at different levels. The prevalence of symptoms of severe depression found exceeds that reported nationally and internationally, in line with the results obtained by El Ansari et a., 2014, while moderate depression occurs within the ranges described internationally.

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