



# Academic Workload and Mental Health in Veterinary Medicine Students: An Analysis from Higher Education

## *Carga Académica y Salud Mental en Estudiantes de Medicina Veterinaria: Análisis desde la Educación Superior*

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**Abstract:** The aim of this study was to analyze the relationship between academic workload, mental health, and academic performance among Veterinary Medicine students at the Universidad Técnica de Machala. A cross-sectional study with a mixed-methods approach was conducted in 368 students using an online survey that included sociodemographic data, indicators of academic workload, dimensions of the Maslach Burnout Inventory–Student Survey, symptoms of anxiety/depression, and use of psychological support services. More than half of the students reported additional responsibilities and dedicating up to 20 hours per week to out-of-class academic activities. Most participants indicated having experienced anxiety or depression at least occasionally, with greater impact among women and students in intermediate and advanced semesters. Exhaustion and cynicism were frequently reported, whereas academic self-efficacy remained generally preserved. Awareness and use of institutional psychological support services were limited, despite a high willingness to use them. Qualitative responses highlighted the need for better distribution of courses and assessments, more active and empathetic teaching methodologies, and university spaces focused on rest and self-care. Overall, the findings indicate that academic workload is associated with indicators of psycho-emotional distress and justify the implementation of curricular and institutional interventions to promote well-being and prevent burnout.

**Keywords:** academic workload; mental health; academic burnout; student well-being.

**Resumen:** El objetivo de este estudio fue analizar la relación entre carga académica, salud mental y rendimiento en estudiantes de Medicina Veterinaria de la Universidad Técnica de Machala. Se realizó un estudio transversal con enfoque mixto en 368 estudiantes, mediante una encuesta en línea que incluyó datos sociodemográficos, indicadores de carga académica, dimensiones del Maslach Burnout Inventory–Student Survey, síntomas de ansiedad/depresión y uso de apoyo psicológico. Más de la mitad refirió responsabilidades adicionales y dedicar hasta 20 horas semanales extraclase. La mayoría reportó haber experimentado ansiedad o depresión al menos algunas veces, con mayor afectación en mujeres y en semestres intermedios y avanzados. El agotamiento y el cinismo aparecieron con frecuencia, mientras que la autoeficacia académica se mantuvo globalmente conservada. El conocimiento y uso de los servicios institucionales de apoyo psicológico fue limitado, a pesar de una alta disposición a utilizarlos. Las respuestas cualitativas señalan necesidad de una mejor distribución de asignaturas y evaluaciones, metodologías más activas y empáticas y espacios universitarios orientados al descanso y al autocuidado. En conjunto, los resultados muestran que la carga académica se asocia a indicadores de malestar psicoemocional y justifican intervenciones curriculares e institucionales para promover el bienestar y prevenir el burnout.

**Palabras clave:** carga académica; salud mental; burnout académico; bienestar estudiantil.

## 1. Introduction

In recent decades, higher education has undergone transformations that go beyond the simple transmission of technical knowledge, acknowledging the impact of psychosocial and well-being factors on the educational process (Nahm & Chun, 2021). In health sciences disciplines such as Medicine, Nursing, and Veterinary Medicine, it has been documented that a high academic workload, combined with pressure to acquire clinical and scientific competencies, generates higher levels of stress than those observed in other fields (Neubauer et al., 2024; Weston et al., 2017).

In the specific case of Veterinary Medicine, students face a range of demands: long schedules, the need to study multiple animal species, early exposure to disease and death, and intensive practical requirements (Özturk et al., 2021). Although these conditions strengthen their professional preparation, they are associated with an increased prevalence of anxiety, depression, and burnout symptoms compared with the general university population (da Silva et al., 2023; King et al., 2024).

International literature reports that up to 40–45% of Veterinary Medicine students present severe levels of stress, with greater impact on women and in the early semesters, where academic and relational factors play a significant role (González et al., 2023; Humer et al., 2023). The relationship between academic workload and mental health is direct: an excess of demands

reduces satisfaction with studies, affects performance, and may lead to university dropout (Chui et al., 2023).

Furthermore, the stressors present during training extend into professional practice. Veterinarians in active practice also report factors such as euthanasia, administrative demands, and interactions with animal owners, which contribute to high rates of burnout and suicide risk in the profession (Adin et al., 2023; Rocha, 2023). Therefore, analyzing academic workload and its impact on mental health and performance during training is essential to implement early interventions.

In this context, the present study aimed to analyze the relationship between academic workload, psycho-emotional distress, and perceived academic performance among Veterinary Medicine students at the Universidad Técnica de Machala. Specifically, it sought to (1) describe the distribution of academic workload indicators and the three MBI-SS dimensions (emotional exhaustion, cynicism, and academic efficacy) by gender and semester; (2) examine self-reported symptoms of insomnia, fatigue, anxiety, and depression, as well as students' perceptions of the impact of academic workload on their mental health and performance; (3) identify the use of, and unmet needs for, institutional psychological support and the main coping strategies reported by students; and (4) explore, through qualitative responses, students' proposals regarding curricular organization, teaching practices, and institutional conditions that foster rest, recreation, self-care, and overall well-being. These objectives were intended to provide an empirical basis for outlining critical areas for action in academic management and for designing strategies aimed at promoting student well-being in veterinary education.

### **Academic Stress: Definition and Characteristics**

Academic stress is understood as the emotional, cognitive, and physiological response that emerges when a student perceives that the demands of their environment exceed the resources available to cope with them (Sousa, 2025). In Veterinary Medicine, this definition takes on a particular nuance: it is not only about long hours of study or passing exams but also about the emotional burden of working with living beings, assuming responsibility for animal welfare, and living with the possibility of loss (Öztürk et al., 2021).

The student learns not only anatomy or physiology, but also to meet the gaze of a distressed animal owner, to face real clinical situations, and, in some cases, to make difficult decisions during hospital rotations. These experiences, although enriching, also generate cumulative emotional strain that is reflected in students' stress levels (King et al., 2024).

### **Main Stressors in Veterinary Medicine**

The literature converges in identifying multiple, closely intertwined factors that contribute to stress among veterinary students. Workload and evaluative pressure stand out, with intensive schedules of theoretical classes, laboratory practicums, and constant assessments; many students describe the feeling of "living to study" (Fauzi et al., 2021). Added to this is the concern about clinical and academic competencies, reflected in the insecurity of not knowing whether they are learning enough to become safe and competent professionals in the future (Carlotto & Gonçalves-Câmara, 2023). Economic factors also play a role, including the cost of tuition, materials, and transportation for off-campus practicums, which at times adds to family or work-related pressures (Hafen et al., 2023).

The social and relational environment can either buffer or exacerbate stress, as interactions with faculty and peers may act as a protective factor or, conversely, become a source of tension (Lima et al., 2021). Moreover, individual characteristics such as perfectionism, high levels of self-demand, and fear of failure are associated with higher stress levels (Weston et al., 2017). These factors rarely occur in isolation; rather, they tend to combine, creating a scenario in which students perceive that they must perform at their best academically, practically, and personally.

### **Prevalence and Consequences**

Studies indicate that between 30% and 40% of veterinary students experience clinically significant levels of anxiety and depression, with a higher incidence in women and in the early years of training (González et al., 2023; Humer et al., 2023). This translates into concrete consequences, such as difficulties with concentration and memory, demotivation and loss of interest in the degree program, and an increased risk of dropout or academic delay (Ribeiro et al., 2024). In fact, behind each figure lies the story of a student who, despite their vocation, feels exhausted, questions whether they have chosen the right path, and faces the dilemma of whether to persevere or give up (King et al., 2024).

### **Relationship Between Stress and Academic Performance**

Academic stress behaves like a double-edged sword. At moderate levels, it can act as a driving force that motivates students to prepare better and stay focused. However, when stress becomes chronic, cognitive blocks, fatigue, and errors in practical tasks begin to appear (Neubauer et al., 2024; Rochin Berumen, 2025).

It is not uncommon to hear students recount how, despite having studied for long hours, during a practical examination with an animal they feel unable to recall what they have learned. This illustrates how stress is not only an emotional factor, but also a direct obstacle to academic performance.

### **Protective Factors and Coping Resources**

In the face of these challenges, several resources can make a significant difference. At the personal level, strategies such as maintaining regular sleep habits, engaging in physical exercise, applying time-management techniques, and reserving spaces for self-care contribute to better stress regulation (Nahm & Chun, 2021). Social networks are also key: having trustworthy classmates, family support, or participating in volunteer activities can strengthen a sense of belonging and community (Lima et al., 2021). At the institutional level, universities that provide psychological counseling services, offer balanced curricula, and implement active teaching methodologies tend to foster greater student resilience (Mastenbroek & Van 't Zand, 2023; Sousa, 2025). These factors do not eliminate stress, but they help make it more manageable and enable students to develop tools that will serve them throughout their professional lives.

### **Continuity of Risk into Professional Practice**

A key aspect is that stress does not end with graduation. The veterinary profession, recognized as one of the most vulnerable to burnout and suicide, demonstrates how stressors experienced during undergraduate training are projected and amplified in clinical practice: long working

hours, economic pressure, difficult decision-making, and the emotional strain of euthanasia (da Silva et al., 2023; Mastenbroek & Van 't Zand, 2023).

Therefore, strengthening mental health during university is not a luxury but a necessity. Investing in student well-being programs, in faculty training for emotional support, and in curricula that include socioemotional skills is a strategy that directly impacts students' quality of life and the future of the profession (Lima et al., 2021).

## 2. Methodology

**Design and approach.** A cross-sectional study with a mixed-methods approach (quantitative–qualitative) was conducted. The quantitative component was descriptive–relational in nature, aimed at identifying the frequency and distribution of indicators of academic workload, emotional exhaustion, cynicism, academic efficacy, and symptoms associated with anxiety and depression. The qualitative component was exploratory, based on thematic analysis of open-ended questions to deepen understanding of students' perceptions of academic workload, mental well-being, and proposals for improvement in veterinary higher education.

**Setting and period.** The study was carried out in the Veterinary Medicine program at the Universidad Técnica de Machala (UTMACH) in Ecuador during a regular academic term in 2025 and included students enrolled across all ten semesters of the program.

**Population, sample, and sampling.** The target population consisted of all students enrolled in the Veterinary Medicine program at the Universidad Técnica de Machala. A non-probabilistic convenience sampling strategy was used, with an open invitation extended to all course groups through institutional virtual environments (virtual classroom and academic email). In total, 368 fully completed surveys were analyzed and considered valid for the study. Inclusion criteria were: being an enrolled student, aged 18 years or older, and providing digital informed consent. Exclusion criteria were incomplete or duplicate questionnaires; in the case of duplicates, the first complete response was retained.

**Instrument design.** A structured online survey was administered, composed of several sections. The first section collected sociodemographic and academic data, including semester of study, gender, additional responsibilities (such as employment, family care, or other duties), and weekly hours dedicated to out-of-class academic activities. A second section addressed perceived academic workload through questions on the volume of assignments, number of assessments and practicums, out-of-class study time, and the students' subjective perception of their academic workload.

A third section focused on the dimensions of academic burnout, using items from the Maslach Burnout Inventory–Student Survey (MBI-SS), organized into the three classic dimensions: emotional exhaustion, academic cynicism, and perceived academic efficacy. Responses to these items were recorded using a Likert-type frequency scale. A fourth section assessed mental health symptoms and their impact on performance, including items on the presence of insomnia, extreme fatigue, and symptoms compatible with anxiety or depression, as well as students' perceptions of the impact of academic workload on their academic performance and motivation toward the degree.

A fifth section was dedicated to institutional psychological support, with closed-ended questions on awareness, access, and use of psychological support resources offered by the university, and on students' interest in receiving additional support or training in stress management and mental well-being. The sixth section explored coping strategies through multiple-choice items on the main strategies used by students to manage academic stress, such as social support, physical exercise, time management, meditation, and psychological counseling, among others. Finally, the instrument included two open-ended questions aimed at gathering students' proposals to improve the distribution of academic workload and teaching support, and to strengthen conditions for well-being and mental health in veterinary training.

The content of the instrument was submitted to expert review by faculty members of the academic unit with experience in university teaching and student mental health, in order to ensure the relevance, clarity, and coherence of the items. Subsequently, a pilot test was conducted with a small group of students to verify comprehension, appropriateness of language, and response time, after which minor adjustments were made prior to the final implementation.

**Data collection procedure.** The survey was implemented on an institutional digital platform and disseminated through the official communication channels of the program (virtual classroom and institutional email). Participation was voluntary, anonymous, and non-remunerated. Each student could respond only once; the platform incorporated basic controls to prevent duplicate entries and to verify consistency in form submission. Data collection was carried out over several weeks of the academic term, until the number of responses was deemed sufficient for analysis.

**Variables and measures.**

The main quantitative variables included levels of emotional exhaustion, academic cynicism, and academic efficacy (corresponding to the MBI-SS dimensions), the self-reported presence of anxiety and/or depression symptoms, insomnia, and fatigue, as well as the perceived impact of academic workload on mental health and academic performance. Descriptive variables comprised semester of study, gender, additional responsibilities, and weekly academic hours outside the classroom. The qualitative component was based on textual responses to the open-ended questions, which captured narratives on the experience of academic workload, mental health, and proposals for improvement in veterinary higher education.

**Data analysis.**

Quantitative data were processed using descriptive statistics, with calculation of frequencies, percentages, and measures of central tendency. Results were organized by semester and gender, and tables and figures were generated to display the distribution of the sample, levels of emotional exhaustion, cynicism, and academic efficacy, the frequency of anxiety and depression symptoms and their perceived impact on performance, and the most commonly used coping strategies.

Qualitative data from the open-ended questions were subjected to thematic analysis with an inductive approach. The procedure involved a thorough reading of all responses, open coding of units of meaning (relevant phrases or segments), and the subsequent grouping of codes into categories related to curricular organization and academic workload, the teaching role and instructional methodologies, psychological support resources and institutional well-being, and

personal coping strategies. These categories were then synthesized into core themes that allowed interpretation, from the students' perspective, of the impact of academic workload on mental health and on the overall educational experience. Additionally, for some open-ended questions, a co-occurrence analysis of terms was applied, which made it possible to visualize recurrent patterns and cluster proposals according to their relation to the institution, faculty, or the students themselves.

### **3. Results**

#### **Data analysis**

For the analysis of the data obtained from the 368 surveys and their 21 questions, a quantitative approach was developed that, on the one hand, considered Section 1, which includes all demographic data, and, on the other, the last question corresponding to Section 7, focused on opinions and suggestions. For the remaining sections—except for Questions 19 and 20, for which a co-occurrence analysis of terms from the open-ended responses was conducted and later summarized in a table—descriptive analyses were performed.

To meet the objectives of this research, a qualitative analysis was also carried out on the three thematic dimensions of the MBI-SS (emotional exhaustion, cynicism, and academic efficacy). This analysis was complemented by the study of coping strategies used by students to manage their emotional difficulties, as well as their personal assessment of the psychological support services offered by UTMACH.

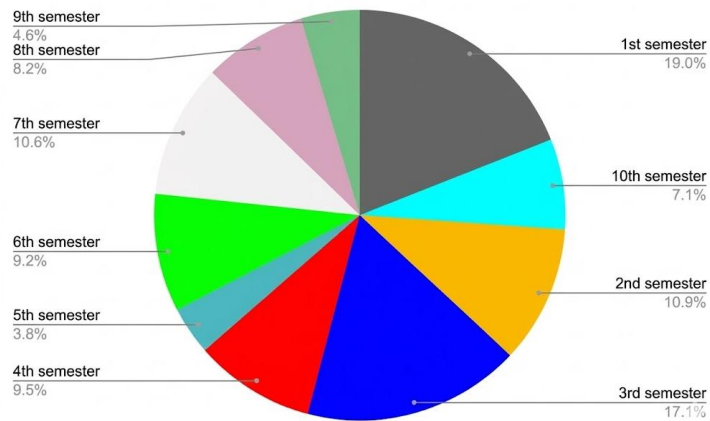
#### **Quantitative: frequencies and percentages**

Regarding questions in Section 1, this report presents an exhaustive descriptive statistical analysis based on data meticulously collected through the survey on academic workload and its impact on the mental health and performance of Veterinary Medicine students. In this section, the main characteristics of the categorical variables that proved most relevant and representative in the study are described.

With respect to the distribution of the sample by semester, the highest percentage of students was enrolled in the first semester (19.02%), followed by the third (17.12%), second (10.87%), and seventh (10.60%) semesters. In the subsequent semesters, a reduction in the magnitude of these proportions was evident, as shown in Figure 1. Across all semesters analyzed, 57.3% of participants reported having additional responsibilities outside regular class hours at the time of the survey, as illustrated in Figure 2.

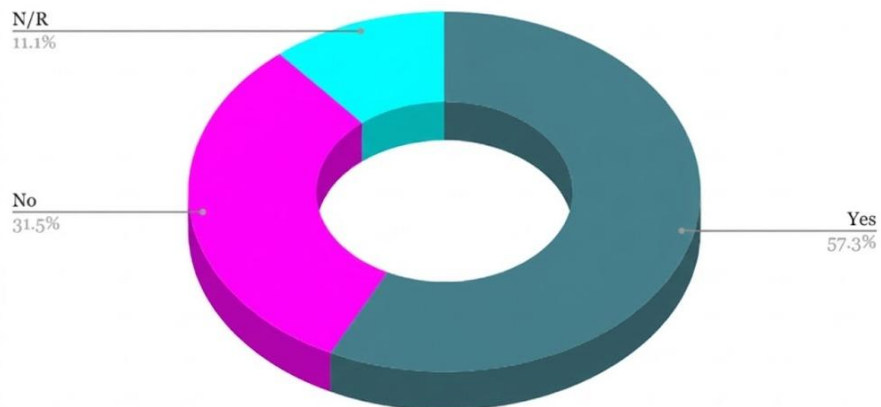
**Figure 1.**

Surveyed semesters



**Figure 2.**

Students' additional responsibilities



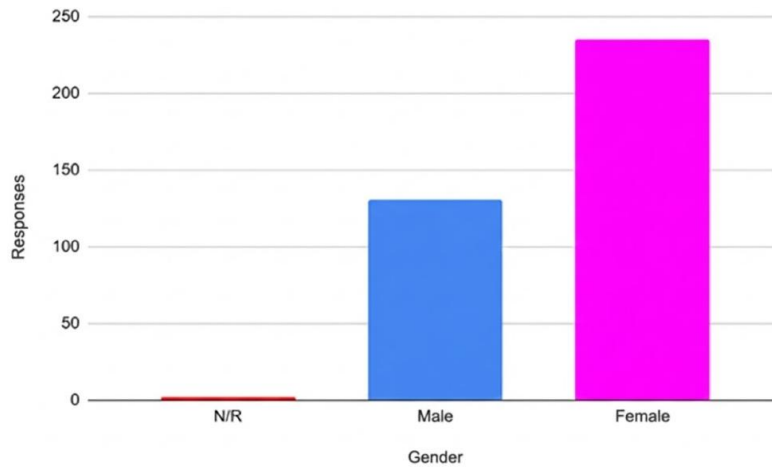
Source: Authors.

Regarding participants' gender, the sample was predominantly composed of women (63.86%), while men represented 35.60% of respondents. A minimal percentage of participants did not provide information about their gender, with an incidence of 0.54%, as shown in Figure 3.

In the analysis of weekly academic hours spent outside the classroom, which were similar in both genders (Figure 4), 43.21% of students reported dedicating fewer than ten hours per week to extracurricular academic activities, whereas 40.22% indicated spending between 10 and 20 hours per week on such activities. A further 13.59% of the sample devoted between 20 and 30 hours per week to these activities, and only 2.99% reported dedicating more than thirty hours per week to academic work outside the classroom.

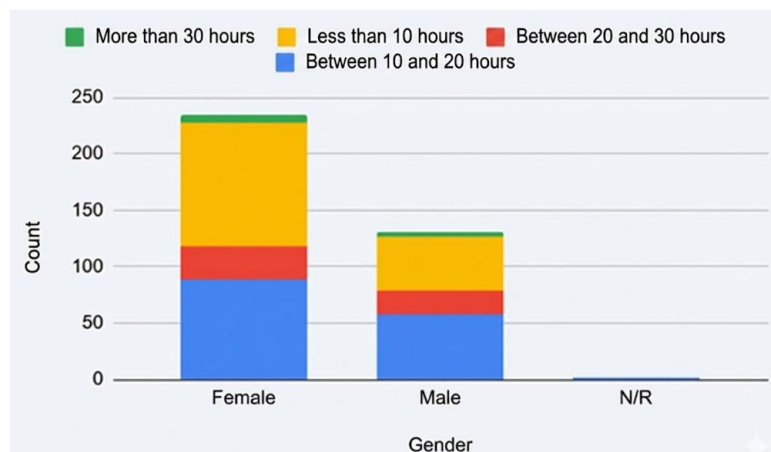
**Figure 3.**

Students' gender



**Figure 4.**

Weekly hours dedicated to academic activities outside class



**Qualitative: thematic analysis of open-ended responses**

With respect to questions in Section 2, this parameter evaluates the level of both physical and emotional deterioration associated with academic demands, considering variables such as the frequency of exhaustion, the perceived ability to manage workload, and the presence of insomnia or fatigue. Interpretation of the results is closely linked to students' capacity to cope with academic workload by semester and gender, a variable that can be directly managed by the Faculty of Agricultural Sciences at UTMACH. The most common perception is that students "sometimes" feel capable of managing their academic workload, and this perception is more pronounced among female students and from the fifth semester onward, as shown in Table 1.

**Table 1.**

Emotional exhaustion dimension (MBI-SS)

Semester	Gender	Sometimes	Frequently	Very frequently	Never	Rarely
1	Female	47.37%	15.79%	10.53%	7.89%	18.42%
1	Male	36.68%	13.33%	3.33%	13.33%	33.33%
2	Female	43.34%	10.00%	10.00%	3.33%	33.33%
2	Male	20.00%	20.00%	30.00%	30.00%	0.00%
3	Female	61.90%	7.15%	7.14%	2.38%	21.43%
3	Male	47.62%	9.52%	0.00%	14.29%	28.57%
4	Female	52.17%	26.09%	8.70%	0.00%	13.04%
4	Male	41.67%	16.67%	8.33%	8.33%	25.00%
5	Female	50.00%	0.00%	20.00%	30.00%	0.00%
5	Male	50.00%	50.00%	0.00%	0.00%	0.00%
6	Female	58.33%	4.17%	4.17%	0.00%	33.33%
6	Male	30.00%	20.00%	0.00%	20.00%	30.00%
7	Female	57.69%	15.38%	7.70%	0.00%	19.23%
7	Male	38.47%	15.38%	30.77%	7.69%	7.69%
8	Female	50.00%	33.33%	0.00%	5.56%	11.11%
8	Male	41.68%	8.33%	8.33%	8.33%	33.33%
9	Female	80.00%	0.00%	10.00%	0.00%	10.00%
9	Male	28.57%	28.57%	0.00%	0.00%	42.86%
10	Female	50.00%	21.43%	0.00%	7.14%	21.43%
10	Male	41.67%	16.67%	0.00%	16.66%	25.00%

**Results related to questions in Section 3**

This component explores demotivation, detachment, and the manifestation of anxiety or depression symptoms among the student population. It was observed that detachment may be associated with advanced semesters, possibly due to the accumulation of academic workload. Demotivation appears as a widespread phenomenon affecting various groups. The responses “rarely” and “sometimes” are the most frequent, with the exception of the feeling of lack (Table 2). However, it is important to note that, during the second semester, three out of eight surveyed women reported feeling demotivated more frequently compared with men.

**Table 2.**

Cynicism dimension (MBI-SS)

Semester	Gender	Sometimes	Frequently	Very frequently	Never	Rarely
1	Female	26.32%	7.89%	2.63%	39.47%	23.68%
1	Male	33.33%	3.33%	0.00%	40.00%	23.33%
2	Female	26.67%	0.00%	6.67%	36.67%	30.00%
2	Male	70.00%	0.00%	0.00%	20.00%	10.00%
3	Female	28.57%	2.38%	0.00%	38.10%	30.95%
3	Male	9.52%	0.00%	4.76%	33.33%	52.38%
4	Female	26.09%	0.00%	4.35%	26.09%	43.48%
4	Male	25.00%	8.33%	0.00%	41.67%	25.00%
5	Female	20.00%	0.00%	0.00%	60.00%	20.00%
5	Male	50.00%	0.00%	0.00%	25.00%	25.00%
6	Female	20.83%	4.17%	4.17%	45.83%	25.00%
6	Male	40.00%	0.00%	0.00%	20.00%	40.00%
7	Female	7.69%	19.23%	3.85%	23.08%	46.15%
7	Male	30.77%	23.08%	0.00%	30.77%	15.38%
8	Female	5.56%	11.11%	11.11%	16.67%	55.56%
8	Male	33.33%	8.33%	0.00%	33.33%	25.00%
9	Female	30.00%	0.00%	0.00%	20.00%	50.00%
9	Male	14.29%	28.57%	0.00%	14.29%	42.86%
10	Female	42.86%	0.00%	0.00%	21.43%	35.71%
10	Male	33.33%	8.33%	0.00%	16.67%	41.67%

**Results related to questions in Section 4**

This section addresses the relevance of self-efficacy and students’ perceived achievement in meeting academic demands and resolving the challenges they face at university. Accordingly, it examines students’ perceptions of their ability to meet academic requirements by semester and gender. The results show that most students perceive that they can meet these demands “sometimes” or “frequently.” It was observed that male participants tend to report a higher frequency of “very frequently” in their perceived ability to meet academic requirements compared with the other gender, as shown in Table 3.

**Table 3.**

Academic efficacy dimension (MBI-SS)

Semester	Gender	Sometimes	Frequently	Very frequently	Never	Rarely
1	Female	44.74%	31.58%	18.42%	2.63%	2.63%
1	Male	30.00%	40.00%	23.33%	0.00%	6.67%
2	Female	50.00%	16.67%	23.33%	0.00%	10.00%
2	Male	30.00%	20.00%	30.00%	0.00%	20.00%
3	Female	30.95%	21.43%	30.95%	0.00%	16.67%
3	Male	33.33%	23.81%	28.57%	9.52%	4.77%
4	Female	43.48%	30.43%	13.04%	4.35%	8.70%
4	Male	16.67%	50.00%	33.33%	0.00%	0.00%
5	Female	50.00%	10.00%	20.00%	0.00%	20.00%
5	Male	50.00%	50.00%	0.00%	0.00%	0.00%
6	Female	41.67%	29.16%	16.67%	0.00%	12.50%
6	Male	20.00%	40.00%	20.00%	0.00%	20.00%
7	Female	38.46%	7.70%	7.69%	15.38%	30.77%
7	Male	30.77%	7.70%	15.38%	38.46%	7.69%
8	Female	38.89%	33.33%	22.22%	0.00%	5.56%
8	Male	33.33%	41.67%	16.67%	0.00%	8.33%
9	Female	30.00%	50.00%	10.00%	0.00%	10.00%
9	Male	42.86%	42.86%	14.28%	0.00%	0.00%
10	Female	35.71%	50.00%	14.29%	0.00%	0.00%
10	Male	25.00%	50.00%	16.67%	8.33%	0.00%

**Results related to questions in Section 5**

In contrast to students’ self-perception regarding their ability to meet academic demands by gender, this section addresses the relationship between academic demands and the development of stress, anxiety, or depressive symptoms among students. Analysis of the collected data reveals that most Veterinary Medicine undergraduates reported having experienced symptoms of emotional distress while carrying out their academic activities. It was observed that male students tend to report a lower impact on their mental health compared with their female peers, as shown in Table 4.

**Table 4.**

Feeling of anxiety or depression

Gender	Never	Rarely	Yes, sometimes	Yes, frequently
Female	3.83%	17.45%	52.34%	26.38%
Male	16.79%	23.66%	42.75%	16.80%

In this category, the perception and use of the psychological support resources offered by the institution are evaluated. A significant proportion of respondents who selected the options “I am not sure” or “no” are either unaware of or do not perceive the existence of available psychological support services. Only a minimal number of students confirmed the existence of such support, suggesting a shortcoming in communication about the availability of these resources. Consistent with this, a substantial proportion of student responses indicate a favorable inclination toward using support services, reflected in the answer “no, but I would like to” to the question posed (Table 5). This finding reveals an unmet need and an opportunity for improvement for the institution.

**Table 5.**

UTMACH resources for psychological support

Evaluation of the institution	Percentage
I am NOT SURE whether I am aware of psychological support resources	50.50%
The university does NOT offer psychological support resources	39.70%
YES, I know that the university offers psychological support resources	9.80%
I have NOT used the psychological support offered by the university, BUT I WOULD LIKE TO	64.90%
I do NOT NEED the psychological support offered by the university	30.40%
YES, I need the psychological support offered by the university	4.70%

**Results related to questions in Section 6**

In this study, the evaluation of students’ self-efficacy and perceived achievement is addressed with the aim of examining their capacity to meet academic demands and cope with the challenges they face. Emphasis is placed on the importance of recognizing the emotions experienced by the participants, as well as on their learning of self-care strategies and the strengthening of their own mental well-being through activities such as “physical exercise,” “time management,” “meditation,” and, to a lesser extent, formally acknowledging that they sought (possibly external) “psychological assistance.” Taken together, these elements reflect their resilience in the face of potential episodes of depression, anxiety, and stress (Table 6).

**Table 6.**

Strategies adopted for stress management

Semester	Psychological assistance	Friends/family	Physical exercise	Meditation/Mindfulness	Time management	Others
1	1.43%	40%	21.43%	4.29%	28.57%	4.28%
2	0%	45%	25%	0%	17.50%	12.50%
3	3.17%	44.44%	22.22%	4.77%	20.63%	4.77%
4	2.86%	57.14%	14.29%	2.86%	17.14%	5.71%
5	0%	28.57%	35.71%	14.29%	0%	21.43%
6	0%	41.18%	23.53%	5.88%	20.59%	8.82%
7	5.13%	33.33%	25.64%	12.82%	17.95%	5.13%
8	0%	30%	36.67%	6.67%	13.33%	13.33%
9	0%	47.06%	29.42%	5.88%	11.76%	5.88%
10	3.85%	19.23%	42.31%	3.85%	15.38%	15.38%

**Co-occurrence of terms among questions in Section 7**

In the final section on personal assessments and proposals for improvement, the data entered for both categories consisted of open-ended text responses. Once the information was examined and a predetermined pattern of keywords was identified, which is presented in Box 1, these terms were subdivided into three specific groups for better understanding: those related to the institution, those involving faculty, and those pertaining to the students themselves.

**Box 1.**

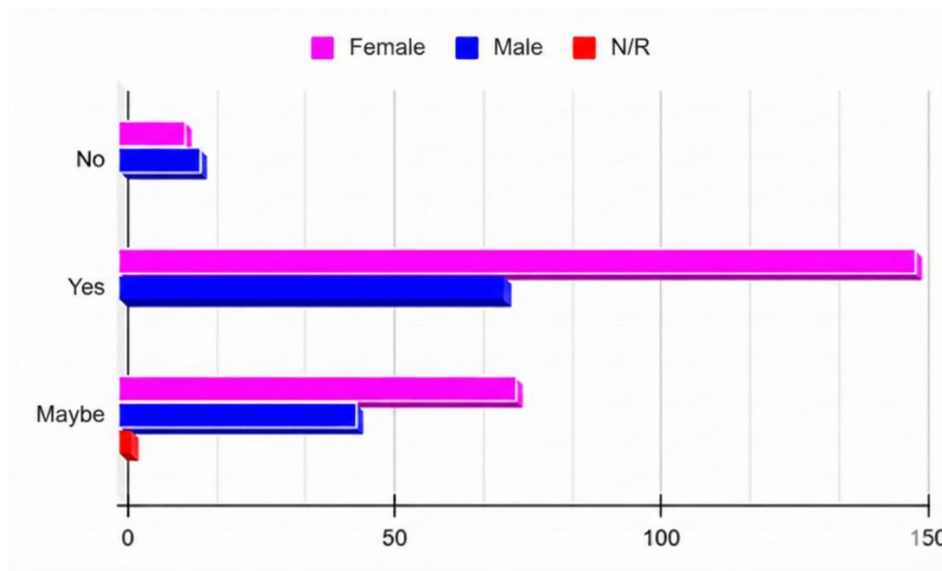
Summary of students’ open-ended responses

Related to the institution	<ul style="list-style-type: none"> <li>-Distribute courses more evenly across semesters, avoiding the clustering of the most complex subjects.</li> <li>-Create spaces or zones for recreation, rest, and quiet.</li> <li>-Implement free psychological and emotional support programs within the faculty or university.</li> <li>-Offer workshops and talks on time management, stress management, study techniques, and healthy habits.</li> <li>-Include training in time management and study skills within the curriculum.</li> </ul>
Related to faculty	<ul style="list-style-type: none"> <li>-Reduce the load of projects, assignments, and presentations, balancing them with more practical activities and less unnecessary theory.</li> <li>-Coordinate exam and project dates to avoid overload, especially during the final weeks.</li> <li>-Decrease the volume of homework and graded tasks, being flexible with deadlines while respecting class schedules.</li> <li>-Use more didactic, participatory, innovative, and outdoor teaching methods.</li> <li>-Demonstrate empathy, improve communication, and foster better treatment of students.</li> </ul>
Related to students themselves	<ul style="list-style-type: none"> <li>-Manage their time better for assignments, studying, and rest activities; avoid accumulating workload; and design more efficient schedules and distribution of tasks.</li> <li>-Participate proactively in sports, recreational activities, physical exercise, and mental games.</li> <li>-Improve their relationship with faculty.</li> </ul>

However, with regard to the question about willingness to receive additional training in stress management and mental well-being, it can be inferred that this is consistent with individual perceptions of a potentially widespread demand across semesters for further training in this area, which appears to be driven mainly by women (Figure 5).

**Figure 5.**

Students' willingness to receive additional training



#### 4. Discussion

According to Humer et al. (2023), their study determined that a higher percentage of veterinary students exhibited clinically significant levels of mental health symptoms compared with the general Austrian population ( $P < 0.05$ ). A total of 55.3% of participants presented moderate depression, 52.6% moderate anxiety, 20.9% insomnia, 79.3% elevated stress, 22.8% alcohol abuse, and 38.6% eating disorders. Several factors were shown to be associated with these conditions, including female sex, older age, low physical activity, high smartphone use, and a desired specialization in small animal or wildlife medicine.

Regarding levels of professional burnout in a sample of 477 medical students from Istanbul University, values of 13.31, 7.82, and 7.69 were observed for emotional exhaustion, depersonalization, and personal accomplishment, respectively. Academic year and engagement in leisure activities were influential factors in burnout. Burnout was significantly associated with the intention to drop out, mismatch between training and occupation, and academic failure. According to Öztürk et al. (2021), gender, living arrangements, and monthly income also influenced the results.

Veterinary students experience graduation-related stress, with a significant effect by gender, as women are more likely to be affected. The determining factors, classified according to the Job Demands–Resources (JD-R) model, included study requirements, preparation for professional responsibilities, perceived deficiencies in knowledge, skills, and experience, fear of making mistakes, and feeling unprepared to assume responsibilities. Educational resources, such as a

positive environment, effective practical training, and free weeks, as well as personal resources like a proactive mindset and acceptance of limitations in knowledge, were effective in mitigating stress (Zand, 2024).

The focus of the present study is grounded in the considerations reported by the aforementioned authors. This work constitutes a solid basis for future research and educational actions aimed at improving well-being and academic performance. To this end, various variables were evaluated, such as perceived exhaustion, workload capacity, physical symptoms related to academic stress, frequency of demotivation, academic efficacy, academic achievement, impact on mental health, use of psychological support, and stress management, among others.

#### **Ethical considerations clause**

The data collected will be treated with strict confidentiality, in accordance with the bioethical principles of autonomy, beneficence, non-maleficence, and justice. Participation is voluntary and anonymous. By completing the digital form, the participant acknowledges having been informed about the objectives of the study, the use of their data, and their rights as a research subject in this study.

#### **5. Conclusions**

This study shows that academic workload in the Veterinary Medicine program at the Universidad Técnica de Machala is consistently associated with key indicators of psycho-emotional distress. A substantial proportion of students combine intensive schedules of classes, practicums, and examinations with additional responsibilities outside the classroom and a considerable number of out-of-class study hours. This scenario translates into frequent levels of emotional exhaustion, insomnia, fatigue, and symptomatology compatible with anxiety and depression, which are particularly marked among women and in certain intermediate and advanced semesters.

The three dimensions of the MBI-SS reveal a risk profile that cannot be overlooked: exhaustion and cynicism appear with relative frequency, whereas perceived academic efficacy remains generally preserved. This apparent balance suggests that many students manage to respond to curricular demands, but at the cost of cumulative emotional strain that may compromise their well-being, their motivation toward the degree, and even their continuation in the program.

The findings also reveal a gap between the need for psychological support and its effective use. Although a considerable proportion of students express interest in receiving professional help and complementary training in stress management and mental well-being, awareness of existing institutional resources is limited and their actual use is low. At the same time, coping strategies focus mainly on social support, physical exercise, and time management, which indicates the presence of valuable personal and community resources, but also highlights the need for greater visibility and coordination of the formal supports available.

Qualitative assessments reinforce these results by emphasizing, from the students' perspective, the importance of better organization of courses and assessments, more active and empathetic teaching methodologies, and the existence of physical and curricular spaces focused on rest, recreation, and self-care. In this sense, academic workload emerges not only as a matter of the

quantity of content, but as a complex phenomenon involving curricular organization, pedagogical practices, institutional conditions, and the availability of resources for well-being.

Although the cross-sectional nature of the study and the use of convenience sampling limit the generalizability of the results, the patterns observed are consistent with international literature and provide a solid empirical basis for understanding the interaction between academic workload, mental health, and performance among Veterinary Medicine students. On the basis of this evidence, critical areas for action in academic management and the design of strategies aimed at promoting student well-being are outlined and further developed in the recommendations section.

## 6. Recommendations

Based on the results, it is recommended that the Veterinary Medicine program at the Universidad Técnica de Machala undertake a systematic review of the distribution of academic workload across semesters, avoiding the simultaneous clustering of highly demanding courses and assessments. It is necessary to improve coordination among course instructors in scheduling exams and assignments, and to consider the incorporation of curricular and extracurricular spaces oriented toward rest, recreation, and the healthy use of free time within the university environment.

At the institutional level, it is suggested to strengthen and make more visible the psychological support services available to students through clear and sustained dissemination campaigns, as well as agile and confidential access mechanisms. Complementarily, it is recommended to offer training programs in stress management, study techniques, time management, and self-care, with particular emphasis on students in the health sciences.

From a pedagogical perspective, it is proposed to promote faculty development in active teaching methodologies and socioemotional support, with the aim of fostering more empathetic, participatory, and humanized learning environments.

Finally, it is considered pertinent to follow up on this diagnostic process through longitudinal and comparative studies that will allow the evaluation of the impact of the interventions implemented on students' mental health, well-being, and academic performance.

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