

The adoption of dog-assisted activity in the university environment as a tool to minimize the stress of academics



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ABSTRACT

This study examined the impact of Animal-Assisted Intervention (AAI), specifically contact with a therapist dog, on reducing stress among university students. The research was conducted at the Pontifical Catholic University of Paraná (PUCPR) in 2021 and involved nine medical students enrolled

at the university. Inclusion criteria included no fear of or allergy to dogs. The results revealed that interaction with the dog had positive effects on reducing the students' stress. Although there were no significant changes in heart rate, systolic blood pressure decreased significantly after the interaction. In addition, the students' levels of stress, anxiety, tension and worry decreased after the session with the dog, and no student reported elevated levels of these parameters after the interaction. The students also mentioned that, during the interaction with the dog, they were able to momentarily forget their worries, which suggests a temporary relief from stress. In addition, the majority of participants stated that they would recommend the Animal Assisted Intervention. These results indicate that AAI, even in short sessions, can be effective in reducing stress among university students. The presence of a therapist dog creates a pleasant social atmosphere and offers emotional support, improving students' mental health. Therefore, the implementation of animal-assisted therapy programs in academic settings can be beneficial in helping undergraduate students cope with stress and anxiety, promoting a healthier learning environment.

Keywords: Animal-assisted activity, Well-being, Students, University.

1 INTRODUCTION

A first definition suggests that stress results from pressure (external stimulus) which, when it becomes too great, leads to an inevitable (internal) collapse (Luber, 2004). The second, on the other hand, focuses on the harmful response to the stimulus in physiological terms, such as those represented by the sympathetic activities of the adrenal or pituitary-adrenal-cortical medulla (Selye, 1956). Stress arises at some point in the day and with it occurs some situations that affect physiological changes or emotional state. These alterations can be effective up to a certain moment, but when in excess, they trigger numerous situations, generating stress, and their responses vary among individuals (Reis et al., 2010).



College students experience stress throughout their academic journey, often due to distance from home, and from taking on adult responsibilities often for the first time (Mckerrow et al., 2020). Therefore, finding the balance between study, family, and work can be tricky to achieve. Young people have been affected by social anxiety, whose main characteristic is fear or anxiety about one or more social situations in which the individual is exposed to possible evaluation by other people (Sapienza, 2018). Stress negatively impacts the learning and academic performance of university students, and can lead to depression and lead to dismissal from the course and exit from the university (Pascoe et al., 2020). This population is also prone to sleep disorders, substance use, and suicide (Liu et al., 2019).

Thus, as a strategy to alleviate stress, methodologies with the use of animals were analyzed, for example, the program regulated by the Delta Society (1996) in the United States. Therefore, in this method, Animal Assisted Interventions are divided into two groups: Animal Assisted Activity (AAA) and Animal Assisted Therapy (AAT). AAA involves therapy practices with an animal, entertainment activities, motivation, and improved quality of life. On the other hand, AAT incorporates a formal therapeutic process, with well-defined objectives, which must be performed by health professionals (Delta Society, 1996).

In addition to AAA and AAA, some universities have used Animal-Assisted Intervention (AAI) as a way to reduce stress, and it has shown positive results in reducing stress symptoms, improving mood, and even academic performance (Pendry and Vandagriff, 2019).

With this, the therapy animal must also have a calm temperament and inspire confidence, like to be played, hugged and touched. In addition, the animal must undergo specific training for this activity (Fülber, 2011; Mores et al., 2021).

Attending university has long been identified as a potentially stressful experience (Reis et al., 2010). Factors contributing to student stress include the transition from home to independent living, increased academic expectations, time management, new roles, social demands, and sleep deprivation (Macan et al., 1990; Scott and O'Hara, 1993). Although young people have their first experience free from parental monitoring, this provides an opportunity for independence, leading to greater responsibility and constraints, and causing anxiety and stress to students (Aron et al., 2010).

Universities are increasingly looking for ways to support the social and emotional development of academics by offering mental health support services, such as one-on-one counseling with a healthcare professional (Binfet et al., 2017). As a way to reduce stress, programs with therapy dogs are being installed at colleges. In the United States, dog therapy is significant. About 1,000 university campuses in the country offer the student population the opportunity to practice the activity with animals for five to 45 minutes a day (Crossman and Kardin, 2017). Canine therapy is considered a therapeutic approach, allowing students the opportunity to interact with dogs, reducing stress (Crossman and Kazdin, 2015; Barker et al., 2016).



It is known that living with pets brings benefits, both for physical and psychological health (Coutinho et al., 2014). In England, in 1972, there were the first records of the therapeutic relationship between animals and humans, at the Retreat Psychiatric Hospital in York, where animals were used to stimulate patients with mental disorders in tasks such as reading, writing and dressing. Nise da Silveira, a psychiatrist, in the 1950s, treated patients with schizophrenia at the Dom Pedro II Psychiatric Hospital in Rio de Janeiro, using co-therapist animals in her care (Bustad, 1986; Stumm et al., 2012; Jarolmen and Patel, 2018).

The benefits of this interaction between man and animal are known in terms of mental health, and have positive results, for example, in the case of depression and anxiety disorder (Berzins, 2000). Studies have shown that contact with animals decreased stress, lowered blood pressure, heart rate, and cholesterol (Anderson et al., 1992), and improved depression and personal isolation (Souter and Miller, 2007). The presence of animals improves the quality of life of people undergoing medical and psychological treatments (Vieira et al., 2016). Thus, Animal-Assisted Intervention (AAI) promotes physical, psychological, and educational benefits through the reduction of anxiety (Binfet et al., 2017).

In Brazil, PUCPR was a pioneer in implementing a project with therapy dogs, through the institution's Psychopedagogical Support Service (SEAP), which is called "Projeto Focinhos". Dogs are not only used in university spaces (such as classrooms and courtyards), but in clinical settings, such as hospitals and geriatric care centers, aiming to reduce stress and improve the social and emotional well-being of those in need (Binfet et al., 2018).

2 MATERIALS AND METHODS

The present research was carried out in the first week of February 2021 and, due to the pandemic, an isolated environment was used on the ground floor of the green block (block 3), at the Pontifical Catholic University of Paraná (PUCPR) on the Curitiba Campus, in different stages, after approval by the CEP (Human Research Ethics Committee – 3,048,013).

As inclusion criteria, only students who were duly enrolled in the university (PUCPR) and who did not have fear or allergy to dogs were used. In this way, those students who showed interest in participating in the interaction with the dog were invited and guided about participation.

To start the sessions, the students were sent to a specific place reserved on the ground floor of the green block – block 3 at PUCPR, respecting the safety protocols indicated by the World Health Organization (WHO) for the prevention of COVID-19, where the evaluations of physiological parameters were carried out, according to the evaluation protocol of the Brazilian Guidelines on Arterial Hypertension (Brazilian Society of Cardiology). The following were performed: 1) Temperature measurement using an Omron digital thermometer, 2) Heart rate measurement was performed using a 3MLittman® stethoscope, in which the heart rate ranges from 60 – 100 beats per



minute (bpm) and 3) Blood pressure (BP) was measured with an adult PaMed sphygmomanometer, where the onset of auscultatory noises, systolic BP was considered to be equivalent to 120 mmHg, and the extinction of auscultatory sounds was considered to be diastolic BP equivalent to 80 mmHg.

After this stage, the students were sent to the place where the male Golden Retriever dog was neutered. In this place, there was a table with various dog toys (ball, rope, brush, rubber toys, among others) and the dog's tutor. Prior to the session, the students were instructed on the freedom to interact with the dog for a total period of seven minutes, which could be sufficient to reduce anxiety, distress and the promotion of positive thoughts, as defined by Hoffmann et al. (2009).

Physiological evaluations were performed by a health student at the beginning of the session (minute 0) and at the end of the session (minute 7).

Before and after the sessions, there was also the application of a questionnaire focused on emotional aspects, such as levels of anxiety, stress, tiredness, worries and what is the interest of students in dog-assisted interactions in the university environment.

2.1 STATISTICAL ANALYSIS

The D'Agostino and Pearson test was used to analyze the normality of the data. The influence of the intervention on physiological parameters was analyzed using the paired Student's *t-test*. Correlation between the investigated parameters was analyzed using Pearson's correlation test. The analyses were performed using the statistical software IBM SPSS Statistics version 25 (IBM Corp, Armonk, NY, USA) considering significant values of $p < 0.05$.

3 RESULTS

Of the nine students analyzed, eight were female and one was male. Some expected results were obtained, such as the reduction of stress and the interaction of the dog with the students. This interaction was considered beneficial, because at some point in the interaction they were able to forget what they were really worried about.

Table 1 shows the means of the physiological parameters evaluated before and after the interaction. There was no difference for heart rate (HR) ($p = 0.2231$). In some cases, there was an increase in HR due to the activity performed with the dog. Systolic blood pressure (BP) was significantly lower later than before (108.9 ± 6.0 vs. 127.8 ± 9.7 mmHg, $p = 0.0003$), and only one student did not show a decrease, but maintained both systolic and diastolic blood pressure. There was a strong positive correlation between HR and maximum BP at the time before ($p = 0.007$; $r = 0.817$).



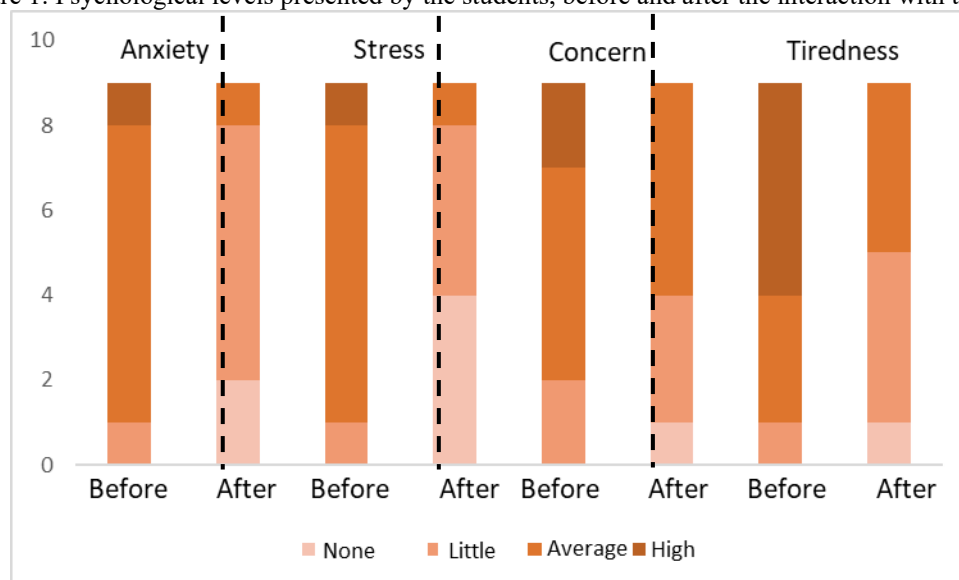
Table 1 – Physiological parameters of temperature, heart rate before and after, blood pressure before and after the interaction between medical students at PUCPR and a Golden Retriever dog during an animal-assisted therapy session.

Students	Temperature °C (before)	Heart Rate bpm (before)	Heart Rate bpm (after)	Blood Pressure mmHg (before)	Blood Pressure mmHg (after)
Student 01	36,2	76	101	130x80 cm	110x70
Student 02	35,8	62	83	110x70	110x70
Student 03	36,0	84	86	120x90	100x70
Student 04	36,4	91	94	140x80	120x80
Student 05	36,0	76	96	120x80	110x80
Student 06	35,9	79	75	130x80	110x80
Student 07	36,7	89	105	140x90	110x60
Student 08	36,2	90	74	130x80	100x60
Student 09	36,0	83	74	130x90	110x80
Average	36,1	81,1	87,5	127x82	108x72

Beats per minute (bpm), Celsius (C), Millimeters of mercury (mmHg).

Figure 1 shows the comparisons between the psychological levels before and after the interaction with the dog. It was observed that before the interaction with the dog, the students had medium and high levels of stress, worry, fatigue and anxiety; Of the nine students, only one had a low level of these psychological parameters and two were not very worried. After the interaction with the dog, there were some changes in the psychological levels of the students. Fatigue levels, which were relatively high, were reduced to medium, little or none; the levels of concern, which were average, became few; Stress levels that were high went to little or none, and finally, anxiety levels went to little or none. What was possible is that, after the interaction, none of the students checked the high option.

Figure 1: Psychological levels presented by the students, before and after the interaction with the dog.

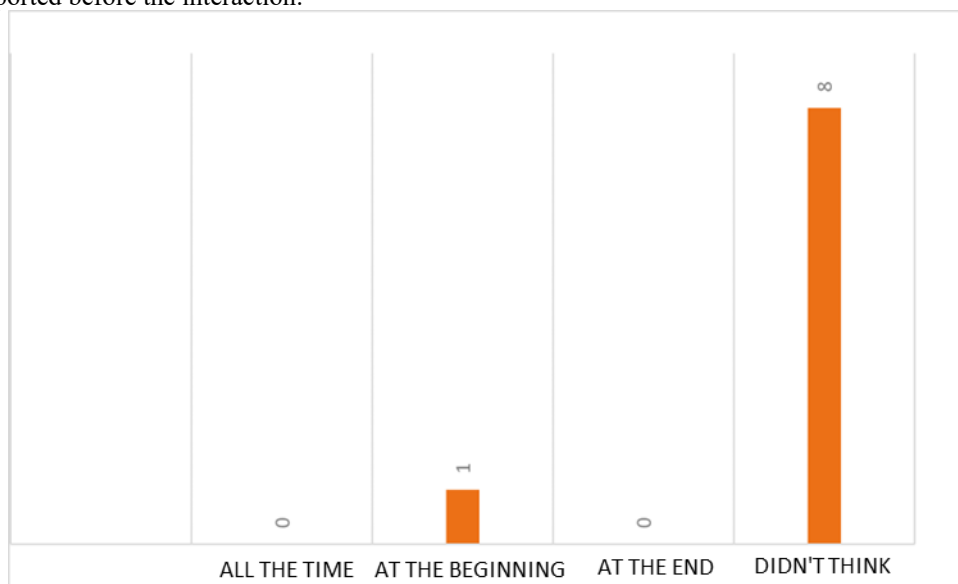




In the answer to the question: "what worries you the most" for some students did not change what really worried, such as college in the distance learning format, the pandemic and the DETRAN practical test; On the other hand, some forgot for a moment what they had written, and other worries arose such as lunch or did not remember if there were any worries at that time.

Regarding the question about whether the student had thought about his initial concern during the interaction with the dog, 90% did not think about the concern, only 10% thought about it and it was only at the beginning of the interaction (figure 2). And finally, the last question included in the questionnaire was whether the student would recommend IAA, and all of them answered yes.

Figure 2: Number of students in relation to the moment when, during the interaction with the animal, they thought about the concern reported before the interaction.



4 DISCUSSION

Reports in the literature show that a single group therapy session with dogs can relieve the stress that students have because of grades, homesickness, family problems, among others (Jarolmen & Patel, 2018). Considering that stress causes numerous stimuli that provoke hormonal excitement, causing homeostasis of the organism and triggers an adaptation process, both physiological and behavioral (Reis et al., 2010), the present study addressed these processes in the questionnaires applied, where behavioral changes were evaluated, such as worry, tiredness, tension, anxiety and stress, in phases that show the person's stress level (alert, resistance, near-exhaustion, and exhaustion).

The students evaluated showed a lower degree of concern after interacting with the dog, for some moments they were also able to forget what worried them; However, some have not been able to completely forget their worries, or even reduce their discomfort. Coutinho et al. (2014) stated that pets bring benefits to both physical and psychological health (), which was corroborated in the present



study, in which it was perceived that the interaction between the dog and the student, even if of short duration (seven minutes) was beneficial.

In this study, it was not possible to prove a decrease in cholesterol, but a decrease in systolic and diastolic blood pressure and heart rate did. Anderson et al. (1992) concluded that, in addition to bringing benefits to mental health, contact with animals can reduce or normalize blood pressure, heart rate, and cholesterol, in addition to combating depression and personal isolation ().

Some universities are implementing therapy dogs into their routine, aiming for students to have a lower rate of psychological distress and social interaction (Stallman, 2010; Eskin et al., 2016). Thus, this study at PUCPR aimed to carry out a stress assessment of the students, and their interest in the implementation of a therapy dog program in the institution.

Other studies have pointed out that just one therapy session with dogs can reduce the stress that students have, in addition to alleviating homesickness, and relieving other psychological problems (Binfet, 2017). In the present work, it is demonstrated that a single seven-minute session with the dog was able to relieve or alleviate the stress that the student presented, in addition to making him forget for a moment the homesickness and other worries that afflicted them.

The presence of a dog inside the university creates a social, pleasant atmosphere, an essential component for a good functioning, which represents a precondition for learning. Some universities in Canada and the United States, which are working to reduce student stress, have implemented animal-assisted therapy programs (Delgado et al., 2017). In Brazil, there are some Educational Institutions such as the Pontifical Catholic University of Paraná (PUCPR), which implemented the IAA with the Snouts Project, which aims to reduce students' anxiety.

It can be said that the IAA in the academic sphere has been successful. Changes in heart rate and blood pressure were observed, as well as psychological levels such as anxiety, stress, tension, worry, and tiredness.

5 CONCLUSION

The IAA in the academic realm has been successful. Changes in heart rate and blood pressure were observed, as well as psychological levels such as anxiety, stress, tension, worry, and tiredness. Although this study evaluated a small group of students who interacted with the therapy dog for seven minutes, it was shown to be an effective way to provide support to students suffering from stress or anxiety.



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