



## Evaluation of anxiety and eating disorders in medical students at UNAERP from 2021 to 2022

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### ABSTRACT

Binge eating (BE) is characterized by an exaggerated intake of food in a short period of time and in an uncontrolled manner, but without the adoption of compensatory measures to prevent weight gain. Individuals with a history of eating disorder, in turn, tend to have a more anxious personality. It is known, however, that anxiety is a physiological emotional state as long as concerns do not occupy most of the individual's day, as in generalized anxiety disorders (GAD). In order to combat these obsessive anxious thoughts, the

person chooses some escape measures, in most cases the psychological discharge is discharged in the pathological food intake.

Thus, as a common consequence of both disorders, there is a high risk of obesity, which has a negative impact on health and quality of life. In view of this, the present study aims to evaluate the comorbidity between both psychic disorders, targeting medical students from the University of Ribeirão Preto (UNAERP), so that with the results we can awaken interest in these areas of study and thus generate a health promotion and prevention, avoiding, for example, obesity that is highly prevalent in both pathologies and in addition, a risk factor for chronic diseases, especially cardiovascular diseases, which in addition to affecting the patient's quality of life is a threat socioeconomic status.

**Keywords:** Binge eating, Anxiety, Obesity, Binge eating disorder, Generalized anxiety disorder.

### 1 INTRODUCTION

Binge eating (BF) is the most prevalent eating disorder in the general population and is characterized by the abnormal and uncontrolled ingestion of an excessive amount of food, usually hyper-caloric, in a short period of time. However, without resorting to compensatory methods (purging, laxatives, and fasting), which differs it from bulimia. The episodes of this eating disorder are characterized by eating at a faster speed than usual and only stopping when they can't stand it any longer, by eating a large amount of food even when satiated, by eating alone, and by feeling guilty and ashamed of what happened. For diagnostic confirmation, the episodes must occur at least once a week for three consecutive months (SADOCK et.al).

In order to identify the frequency of AC and the presence of practices (differential diagnosis with bulimia) in the previous 3 months, the periodic binge eating scale (ECAP) and the Hay Questionnaire are used. To observe the presence of AC without compensatory practices according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), a score >17 in the ECAP and the absence of practices in the second questionnaire are required (OLIVEIRA, et.al. 2020).



Although the etiology of binge eating disorder is unknown, a strong relationship is observed with genetics, impulsive personality style, psychic disorders, hyper-restrictive diets and periods of stress (SADOCK et.al). It is also known that compulsion is a mechanism used as an anxiety reliever. In addition, individuals with a history of eating disorders but no current clinically significant impairment tend to exhibit an anxious personality style, even in the absence of a life history of a clinically significant anxiety disorder (ROSENBAUM et. al).

Thus, by definition anxiety consists of a normal, adaptive response that the human body prepares for fight and flight. Thus, individuals who appear anxious about everything are likely to be classified as having generalized anxiety disorders (GAD). This is defined as excessive anxiety and worry about various events or activities on most days over a period of at least 6 months (SADOCK et. al).

Presented the general concepts for this planned project, aiming to analyze the prevalence of disorders in undergraduates and observe the harm that AC and SBT affects health, which has been demonstrated in the current population. However, there are few studies on this topic in the article search platforms, which contradicts the growing of the disorders, even more in the pandemic scenario in which the project is planned. One can describe the importance of this knowledge in preventing binge eating and generalized anxiety disorders and obesity, as well as quality of life. Based on this data, questionnaires were collected at the University of Ribeirão Preto within the medical course, which contain questions that relate the binge eating disorder and generalized anxiety and obesity, as well as quality of life binge eating and generalized anxiety disorder with the comorbidities when present.

## 2 OBJECTIVES

### **General (PRIMARY)**

To verify the impact of compulsive eating disorder and generalized anxiety disorder on medical students' health.

### **Specific (SECONDARY)**

1. Associate compulsive eating disorder and generalized anxiety disorder;
2. To analyze the correlation of compulsive eating disorder, generalized anxiety disorder, and obesity;
3. To look at the epidemiology of binge eating disorder;
4. Describe the influence of compulsive eating disorder/generalized anxiety disorder on other comorbidities;
5. Looking at generalized anxiety disorder in the psychosocial context;



6. To observe the relationship of compulsive eating disorder/generalized anxiety disorder on mental health.

### 3 HYPOTHESIS AND JUSTIFICATION

The relevance of studying eating and anxiety disorders is mainly due to the negative health outcomes of both, which worsen when concomitant, such as compromised school performance, social isolation and worsening in clinical parameters that they trigger (OLIVEIRA et. al).

It is known that half of binge eaters are obese and that pathological eating behavior is a risk factor for the early development of chronic non-communicable diseases (CNCDs), such as cardiovascular diseases (mainly coronary artery disease and stroke brain diseases), which were the leading cause of death in 2012 worldwide. Among the causes of death analyzed, the most frequent were cardiovascular diseases (30.4%), cancer (16.4%), respiratory diseases (6%), and diabetes (5.3%). Together, these four diseases account for 79.8% of deaths from NCDs in Brazil (FUSCO et. al). Moreover, another sign commonly related to obesity is the imbalance in sleep behavior, characterized mainly by its short duration, which is also often associated with binge eating and anxiety in these individuals (FUSCO et. al). For this reason, the present descriptive study aims to help through the various fields of research to value these psychological disorders that are little addressed in proportion to the high prevalence and too much damage they cause.

### 4 MAIN SCIENTIFIC CONTRIBUTIONS

Mental health problems have been related to multiple social, cultural, economic and environmental factors. Social, educational and work contexts and access to health services can be identified as psychosocial and environmental stressors (COSTA, Camilla Oleiro da et. al). According to Fusco et. al (2020), the factors that contribute to compulsive behavior, stress stands out, since it activates the hypothalamic-pituitary-adrenal axis. With this, it leads to increased cortisol in the plasma, consequently increasing energy metabolism, which stimulates food intake. In this way, the anxiety caused by stress tends to search for food as in an attempt to meet the energy needs of the chronic stress response network. Thus, the deficit in emotion regulation processes would be one of the factors and maintenance of the binge eating disorder. Knowing the high prevalence of AGD and BAC in the Brazilian population, the theme is important to analyze, with a more comprehensive view of both disorders, considering that one can exert influence on the other, offering this way, an orientation on a possible treatment that can have improvement in both disorders (FREITAS et. al).



## 5 MATERIALS AND METHODS (METHODOLOGY)

A descriptive study, survey type, based on data collected from 100 undergraduate students of the medical course from the first to eighth stages of the University of Ribeirão Preto (UNAERP), located in the state of São Paulo. This project will be evaluated by the Ethics and Research Committee of the university and, when approved, data collection will take place, where all patients will sign the Informed Consent Form (Appendix 1) accepting to participate in the study voluntarily and being able to withdraw from the study at any time.

In the collection, in turn, the research participant must inform the age and the semester in which he/she is enrolled. Anthropometric data of weight and height will be reported by the university student himself and will be used to calculate the Body Mass Index - BMI, to analyze the prevalence of obesity ( $> 30 \text{ kg/m}^2$  following the references of the World Health Organization - WHO) in the disorders studied. In addition, we will ask about non-communicable chronic diseases (NCDs), self-perception of the university student about their nutritional status, the presence or history of eating disorders (ED) and anxiety, information about quality of life based on satisfaction with eating habits, the practice of exercise, satisfaction with the school report card, and finally the opinion about the way the university acts to provide mental health to students through an extra questionnaire (Appendix 2).

Then, in order to assess the comorbidity between the disorders, 3 questionnaires will be used (sent by online platforms), in which two are used to assess disordered eating behaviors -Periodic Eating Compulsion Scale (ECAP) (ANNEX 3) to determine the frequency of binge eating (CA) and Hay's questionnaire (ANNEX 4) to detect the existence or not of compensatory practices and rule out, therefore, bulimia- and one for generalized anxiety disorder- GAD-7 (ANNEX 5).

The ECAP is composed of 16 items, 8 of which are behavioral manifestations and 8 of which address feelings involving binge eating. The final score is the result of the sum of the points for each item, ranging from 1 to 4. Scores less than or equal to 17 classified as no BED; scores between 18 and 26 are considered with moderate BED; and greater than or equal to 27, with severe BED (Freitas et. al, 2020; MARCUS et al., 1985).

Hay's questionnaire determines the presence of compensatory practices at least once a week for the past three months, a characteristic of bulimic disorders. That is, it provides the differential diagnosis between bulimia nervosa and binge eating (OLIVEIRA et.al, 2020).

For the instrument called GAD-7 that classifies the anxious symptoms we will base ourselves on the sum of the scores of the items of this instrument, being that from 1 to 4 are minimal symptoms, from 5 to 9 are mild symptoms, from 10 to 14 are moderate symptoms and from 15 to 21 are classified as severe symptoms. (Freitas et. al, 2020)



## 6 INCLUSION AND EXCLUSION CRITERIA

- Inclusion criteria: enrolled in the 1st and 8th stages of the medical course at the University of Ribeirão Preto, SP - Ribeirão Preto campus, age over 18 years, regardless of sex, race, social class or religiosity
- Exclusion criteria: enrollees who refuse to sign the ICF, under 18 years of age, undergraduate student not enrolled in the medical course at the University of Ribeirão Preto, SP
- Criteria for suspending or terminating research: not being approved by the Unaerp Research Ethics Committee

## 7 RISKS AND BENEFITS

Considering the existence of the application of a questionnaire, there is no risk to life or biological contamination. The identification of the volunteers will be kept confidential, thus maintaining the ethical conduct of this project. The questionnaire will include only simple questions so that the research subject can answer any question (for example, embarrassment, shyness), those involved in this project will be available to help by clarifying any doubts; if you prefer, you can leave the answer to the question blank, or you are free not to participate in this study.

To the research subjects: we inform you that the participation of the research will be voluntary and will allow the benefit of contributing to the development of student learning from the execution of this research. No payment of any kind will be offered for participation in this research. They will be assured that all expenses necessary to conduct the research will be the responsibility of the proponents of this project.

Benefits will be considered when, in possession of the final result, we observe the comorbidity between anxiety disorders and binge eating among college students, and can subsequently encourage medical students to discuss this issue within the institution in order to expose the prevalence and harm of both disorders.

## 8 INFRASTRUCTURE/SITE OF RESEARCH

Data collection will be carried out through digital platforms, the chosen one being Google Forms. We will disseminate the presentations and links through social networks and communication applications, such as WhatsApp, to university students enrolled in the 1st to 8th stages of the medical course at the University of Ribeirão Preto, SP - Ribeirão Preto campus.



## 9 RESULTS, DISCUSSION AND CONCLUSION

After collecting data from undergraduate medical students at the University of Ribeirão Preto (UNAERP), who study from the first to the eighth period, there is evidence of a higher prevalence of eating disorders in females and in respondents who report having anxiety disorders, as shown in figure and table 1. With the statistical data, it is possible to correlate anxiety disorders to greater academic dissatisfaction (figure 2), regardless of the period in which the respondent is (figure 3). In addition, the statics show that there is no difference between anxious and non-anxious students with respect to University caring about the condition of the disorder (table 2). But among the anxious students, there is a majority opinion that the University does not cares about their condition ( $p\text{-value} < 0.0001$ ) (figure 4), which reinforces the need for psychological support for students from the beginning of their graduation. Among the analysis between students who use licit and illicit drugs, there was not a significant difference ( $p\text{-value} = 1$ ) when expressing the opinion about the University providing psychological support (table 3). With this, it reinforces the importance of the topic within Universities and in the community as well.

Among anxious students, the prevalence of eating disorders is higher than that of non-anxious students. In addition, among the patients/students with eating disorders, the rate of physical exercise practice is higher (figure 5), since in these patients/interviewees the search for a physical body within society's standards is incessant and as an alternative method they choose to practice physical activities, associated with diets, restrictions and compensations.

It can be concluded that there is a prevalence of anxious and compulsive disorders among the respondents at the university. Thus, it is necessary to continue this line of research or similar ones in order to spread the knowledge of the importance and consequences of the disorders not only within the academic area but also to the entire community. In addition, so that everyone has access to the entire multidisciplinary team within the university or outside in order to have a quality of life.

Figure 1 - Prevalence of female and male presents anxiety

	Anxiety Disorder	Total	Anxious Disorder (p)
Female	56	81	0.6914
Male	11	31	0.3548

Table 1 - Prevalence of women presenting with anxiety

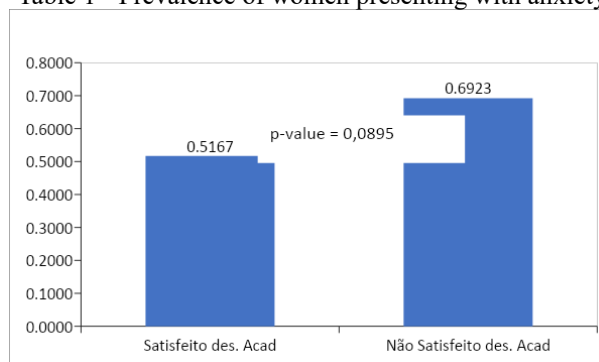




Figure 2 - Relationship between students satisfied or not satisfied with college with Anxiety Disorders

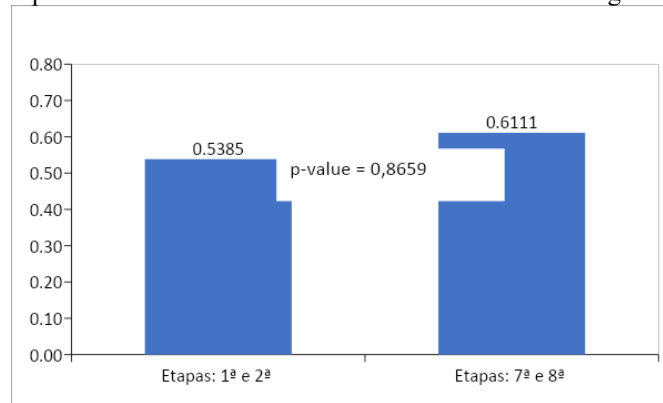


Figure 3 - The graph shows the percentage at different stages in college with anxiety

University imposes it self	nta	Total	Pr op. Univers. cares (p)
Looking forward to	10	67	0.1493
Not Anxious	9	45	0.2000

Table 2 - No difference between anxious and non-anxious students regarding college

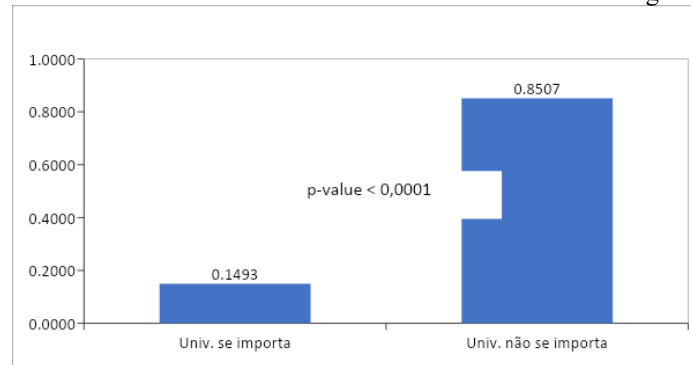


Figure 4 - In the graph shown in this figure there is a discrepancy between the students' opinion with whether or not the college cares about mental health

	University if imports	Total	rop. Univers. cares (p)
uses licit drug	7	44	0.1591
does not use licit drugs	12	68	0.1765

Table 3 - This table shows the low difference between students who use illicit and licit drugs with regard to giving more visibility to mental health issues

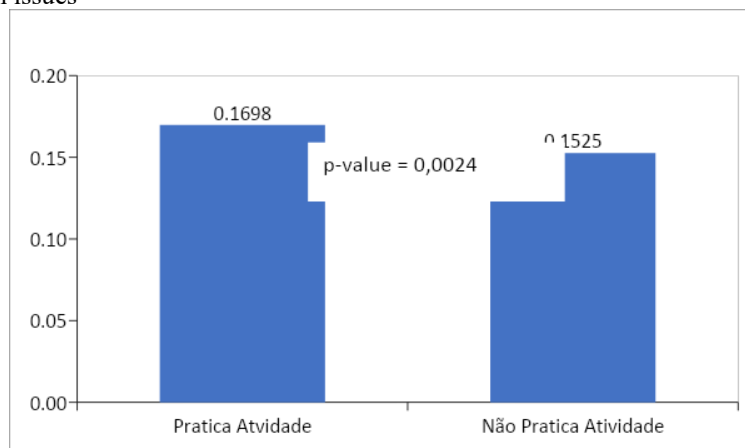
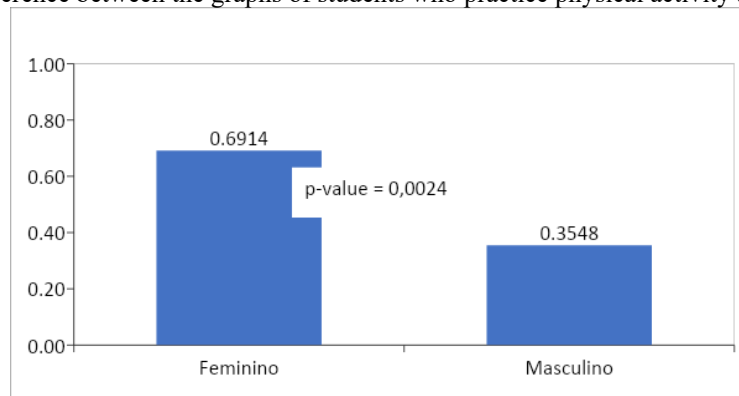




Figure 5 - No difference between the graphs of students who practice physical activity and those who don't







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