



Obesity: a view on treatment: a descriptive observational cross-sectional study

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Abstract

Obesity is a disease stigmatized by society in general. Many tend not to consider it a disease, which makes it difficult to treat and worsens the pandemic generated by this condition. Considering the seriousness with which health professionals must face this problem, a form was applied to 511 Brazilian academic medical students, to understand how these students see this disease and how to treat it. The results showed that there is a tendency for incoming students to opt for diet therapy associated with physical exercises, while students further on consider the use of drugs associated with diet therapy and physical exercises the best strategy. This shows the importance of medical schools providing solid information about obesity and its treatment, showing that in certain cases it is not enough for the patient to follow a diet and exercise. This change in the view of health professionals, therefore, would be a way to fight the pandemic in question.

Keywords: Obesity. Treatment. Drug treatment. Medical education.

Introduction

The term obesity refers to excess fat and, numerically, corresponds to a body mass index (BMI) greater than 30 kg/m² [1]. This index is calculated by dividing the body mass by the squared height of the same person. Obesity can be divided into three grades: grade I (BMI between 30 and 35 kg/m²), grade II (BMI between 35 and 40 kg/m²), and grade III or morbid obesity (BMI greater than 40 kg/m²) [2]. This chronic disease is associated with a significant increase in mortality and the risk of many disorders, whether

metabolic and cardiovascular diseases, cancer, physical limitations, or social isolation, among others [3].

The presence of obesity in humanity is not new. There is evidence that since ancient Egypt obesity was present, throughout the ancient and middle ages. The condition, however, did not constitute a public health problem as it does today and, instead, was often seen as a symbol of abundance and health, due to the context of food scarcity throughout history. From the end of the 19th century, but mainly in the 20th century, following changes in the population's eating habits, such as the greater intake of industrialized products [4], foods rich in fat, salt, and sugar, combined with sedentary habits, obesity to affect more and more people and has become a serious public health problem. In Brazil in 1975, only 2% of men over 20 years old were obese, while in 2015, this number jumped to a frightening 18% [5].

Obesity affects children, adolescents, and adults all over the world, and is considered a global epidemic and a public health problem. In 2015, worldwide, approximately 108 million children and 604 million adults were obese [2]. Also in Brazil, obesity is increasing in all age groups and both sexes, at all income levels, with the most significant growth rate in the population with lower family income. In adults, obesity reached 20.8% of the population in 2013 [6].

Obesity has a range of factors that contribute to its development. Some have a higher prevalence, such as a sedentary lifestyle, focused on inactivity, and increased caloric intake [2], leading to a positive energy balance. Other less frequent ones, but no less important, are neuroendocrine obesity, such as hypothalamic, hypothyroidism, growth hormone deficiency; genetic factors, related to chromosomal abnormalities, autosomal dominant and recessive traits;

iatrogenic causes, provoked by the use of some drugs, surgeries in the hypothalamic axis; social and behavioral factors such as socioeconomic status, psychological factors [2]. Other etiologies are more related to children and adolescents, such as excessive consumption of sugary drinks, including fruit juices, switching from physical activities to video games and television, and poor quality or little amount of daily sleep [1].

The treatment consists of a complete approach to the disease, aiming to prevent, treat, reverse obesity and improve quality of life [7]. Initially, it comprises management considering a combination of diet, exercise, and lifestyle changes, including individual strategies, clinical support, and a training network. This approach is considered initial, as it involves a weight loss of between 5 and 7% of body weight, but with difficulty in maintaining it [7]. Therapy-related to the use of drugs, combined with the maintenance of the initial treatment, is about greater adherence [7], obtaining more emphatic and positive results. The decision depends on an individual strategy, focused on assessing the risks and benefits of the possibilities. In most patients, liraglutide is used as the treatment preference, followed by other uses, such as orlistat and phentermine [7]. Phentermine, as a single agent, is the most widely used drug in the treatment of obesity in the United States [8]. In a meta-analysis study with randomized trials, all active drugs demonstrated greater efficacy when compared to placebo [8]. Other strategies, such as bariatric surgery, intragastric balloon system, and gastric emptying system are used in more severe cases, with a lower rate of evolution in the initial treatments.

Considering all the facts presented, obesity proves to be a serious health problem, which affects a significant portion of the population and requires treatment so that its victims do not suffer even more serious consequences for the body. However, even in the face of the high prevalence of obesity in the population and its consequences, many still see it with prejudice, judging those who suffer from the condition, often as lazy or irresponsible, as if the disease depended only on their will to be cured.

Therefore, the present study aimed to determine the view of medical students from the 1st to the 6th year about the drug treatment used for obesity, as well as to analyze the factors that determined a positive or negative view about the drug treatment in obesity, to relate the view about of drug treatment with the view about other alternative treatments, to verify if there is a tendency of change in the view of the referred academics throughout the graduation on the use of drug treatment in obesity.

Methods

Study Design and Participants

This work followed the STROBE rules for a prospective observational cross-sectional study. This is a descriptive observational cross-sectional study with a quantitative approach. The present work was carried out from a questionnaire that registered name, age, sex, current weight, height, college, and year of the course in which the individual is. After the registration, the participant was invited to answer the following question: "in the treatment of obesity, do you agree with the prescription of medication?". In each case ("yes" or "no" answer) there was a question with multiple choice answers to justify the participant's position. The questionnaire was preceded by a consent form regarding the use of information and responses from participants in this study, all data being authorized for disclosure. The application of such a questionnaire aimed to collect data on how medical students see the drug treatment of obesity to correlate them with the year of graduation of the student. Thus, it is intended, from the methodology, to conclude the proposed questioning.

Results

The survey obtained 511 responses from first to sixth-year medical students from different educational institutions. Of these, 72.2% (369) are female and 27.8% (142) are male. Students were grouped into 3 different groups: first and second-year students; third and fourth-year academics; fifth and sixth-year students (boarding school) (Figure 1). The first group, first and second-year students, represent 65.8% (336) of the total; the second group, third and fourth-year students, 26.2% (134); the third group, referring to boarding school students, 8.1% (41) (Figure 2).

Regarding the questionnaire, in the question "In the treatment of obesity, do you agree with the prescription of drugs?", 67.3% (344) of the participants answered yes, while 32.7% (167) answered no (Figure 3). Of the students who had answered "no", when asked about the justification, 36.9% (65) pointed out that they did not believe in the efficacy of long-term drug treatment, 36.9% (65) believed that diet and physical exercise were sufficient for healthy weight loss, 13.6% (24) showed that treatment with medication adds more harm than benefit (Figure 4). Regarding students who had answered "yes", 56.8% (197) believe that non-drug treatment is sometimes insufficient in certain types of obesity, 19% (66) showed that the use of drugs implies a more disciplined and serious, 2% (7)

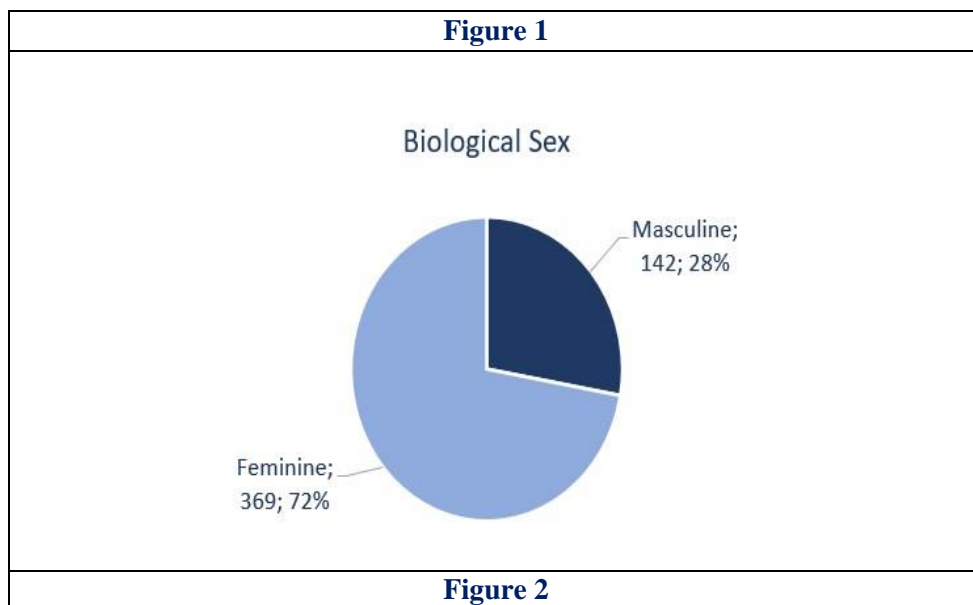
stressed that the use of medication is essential in the treatment of obesity (**Figure 5**).

Regarding the same question, the 3 different groups had different approaches. In the first (first and second year of graduation), 61.6% (207) agree with the prescription of drugs in the treatment of obesity, while 38.4% (129) disagree. In the second group (third and fourth year of graduation), 75.4% (101) agree and 24.6% (33) do not agree. In the third group (the fifth and sixth year of graduation), 87.8% (36) agree and 12.2% (5) disagree.

The other issue concerns alternative treatments, such as bariatric surgery, in cases of obesity. In general, 87.1% (445) consider that it corresponds to an alternative to drug treatment, depending on the severity of the case, 5.9% (30) claim that it is a non-ideal option, as the use of diets and medication is sufficient, 5.3% (27) said it was a non-ideal option since diet alone is enough, 1.8% (9) showed that it corresponds to an alternative to drug treatment, as this is ineffective (**Figure 6**).

Regarding the analysis of the same question, but

concerning the 3 groups of students: in the first group, 85.7% (288) consider that they correspond to an alternative to drug treatment, depending on the severity of the case, 6% (20) claim to be a non-ideal option, as the use of diets and medication is sufficient, 6.2% (21) said it was a non-ideal option since diet alone is enough, 2% (7) showed that it corresponds to an alternative to drug treatment, as this is ineffective. In the second group, 89.6% (120) consider that they correspond to an alternative to drug treatment, depending on the severity of the case, 5.2% (7) claim that it is a non-ideal option, as the use of diets and medication is sufficient, 4.5% (6) said it was a non-ideal option since diet alone is enough, 0.7% (1) showed that it corresponds to an alternative to drug treatment, as this is ineffective. In the third group, 90.2% (37) consider that they correspond to an alternative to drug treatment, depending on the severity of the case, 7.3% (3) claim to be a non-ideal option, as the use of diets and medications is enough, 0% said it was a non-ideal option since diet alone is enough, 2.4% (1) showed that it corresponds to an alternative to drug treatment, as this is ineffective.



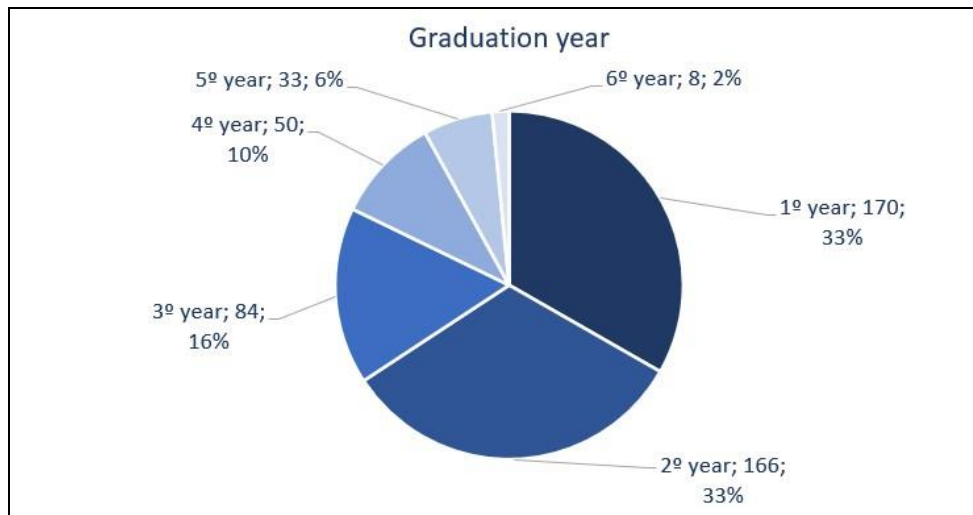


Figure 3

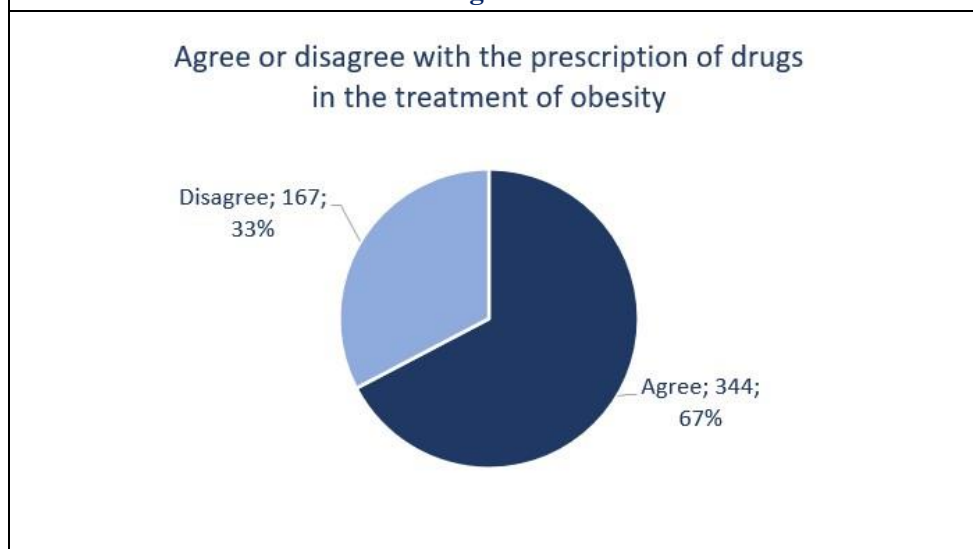


Figure 4

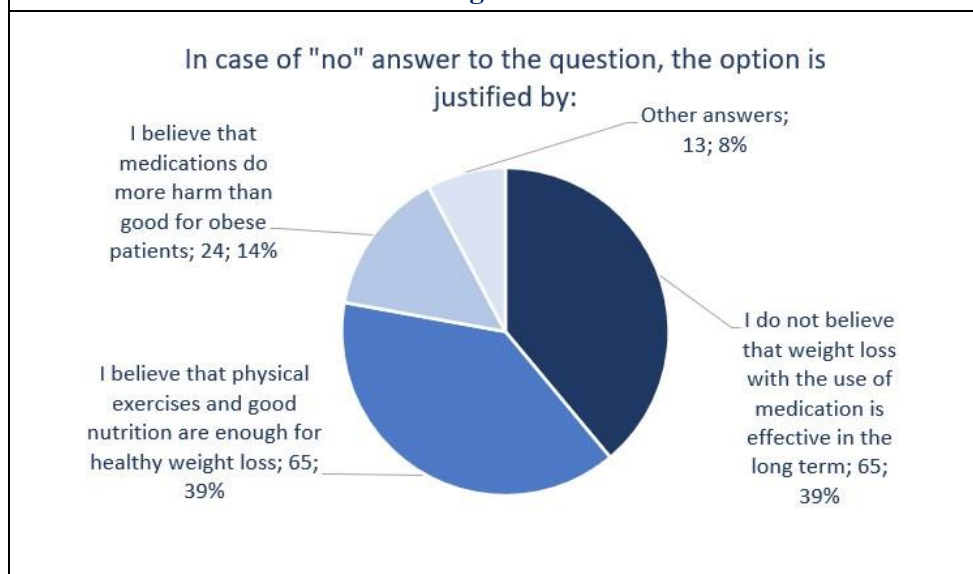


Figure 5

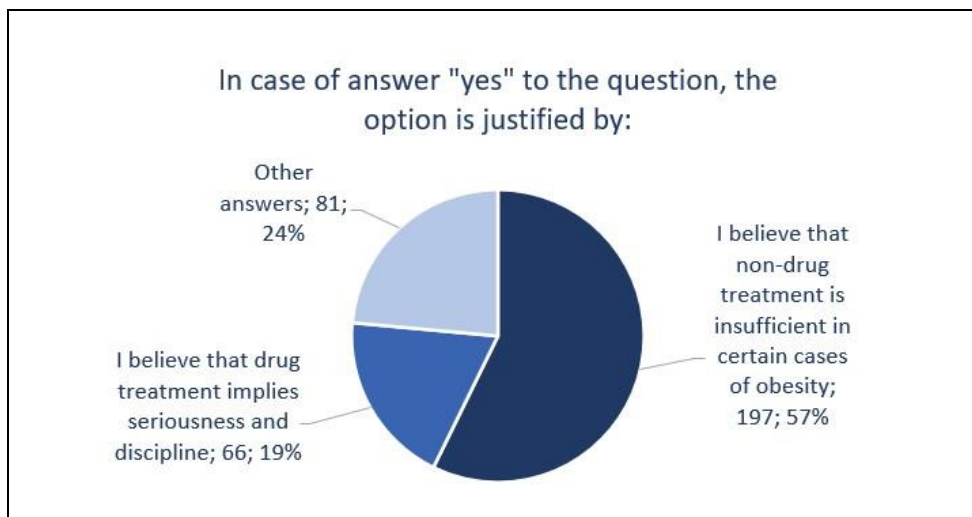
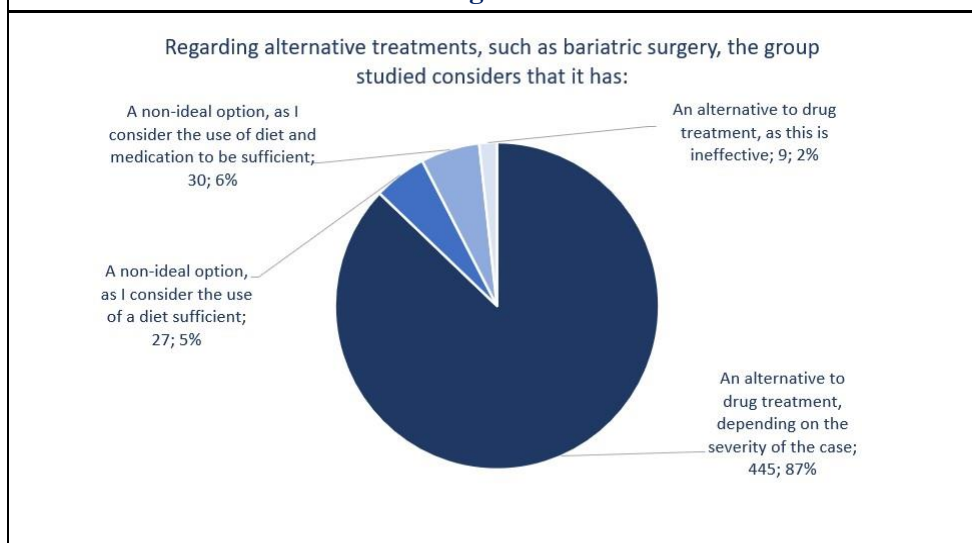


Figure 6



Discussion

Obesity is one of the most prevalent diseases in recent years, with a growing number of obese people around the planet. In the year 2015, there were about 108 million children and 604 million obese adults in the world [2]. It is, therefore, a topic of great importance in the 21st century. Therefore, its study must be increasingly present. In this segment, medical students play a fundamental role, since they are responsible for diagnosing a person with obesity, as well as making the correct prognosis, through the use of diets and good eating habits, physical exercises, and some medications that can help the patient treatment.

Because of the results obtained, it is perceived that the understanding of obesity as a disease, which many times cannot be solved only with diet and exercises, requiring the use of medication, is greater in boarding school students, than in fourth and fourth students the third year, and finally the second and first-year students, showing that when the topic of obesity is

addressed within the course, it proves to be efficient in implementing correct practices. In this sense, a systematic review study carried out by Mastrocola et al concluded that, around the world, there is a shortage of education programs on obesity for medical students, despite the high prevalence, noting that they present positive results in academic training when present [9].

It turns out that, when entering college, the student has a basic knowledge of the disease, without ever having had the real need to study before. Therefore, they present some incorrect and incoherent interpretations that could be adjusted throughout the course with the discussion of the theme, improving the knowledge until it can have enough knowledge for a correct approach at the end of the academic life. To demonstrate the effectiveness of an intervention designed to modify the stigmas present in first-year medical students concerning obese people, the study "Obesity stigma reduction in medical students" proposed a one-year course on obesity, dividing the class into two different groups: the control group and

the intervention group. In conclusion, after one year of the intervention, the group with the intervention proved to be more prepared within the subject, blaming the obese less for their condition when compared to the control group, evidencing the positive aspect of approaching obesity within academic training [10]. In the same perspective, Metcalf et al concluded that most health students felt that it was their role to provide appropriate interventions concerning obese patients, even if the vast majority did not feel prepared to provide the correct actions [11].

In summary, it is perceived that the correct approach to the obesity theme presents important characteristics for the academic formation of the student. Thus, the result of the question about the agreement in the prescription of drugs in the treatment of obesity, with a response subdivided into the three groups, indicates, once again, that the study of obesity throughout college is essential for knowledge to become deeper, since the answer “yes” had a greater variety of 20% between the boarding school group and the first and second-year groups, and it is known that this is a correct and widely used alternative in the treatment of obesity.

Regarding the treatment of obesity, it is important to emphasize that it corresponds to a multifactorial syndrome with a chronic evolution and, like other chronic diseases, it often requires chronic treatment, that is, for life, which includes anti-obesity drugs. If treatment is stopped, the disease returns. It is possible that some individuals stop using these drugs and maintain the new weight, however, if this is not possible, as in the vast majority of cases, the treatment must be carried out for life [12].

As for this treatment, one should seek a weight in which the conditions associated with obesity (hyperglycemia, dyslipidemia, arterial hypertension, heart failure, sleep apnea, among others) are at least attenuated. Therefore, 5 to 10% of body weight loss is often sufficient for this result to be achieved [12]. In short, anti-obesity drugs prescribed for a long time, together with lifestyle changes, favor a greater reduction in body weight compared to a placebo [13].

When addressing drugs that can be used to treat obesity, we note several possibilities, such as the use of adrenergic agonists (Benzetamine, Phendimetrazine, Phentermine, Diethylpropion, Mazindol, Fenproporex, Clobenzorex), malabsorption agents (Orlistate, Acarbose), agents serotonergic agents (Lorcaserin, Sibutramine), combinations (Phentermine+Topiramate, Naltrexone+Bupropion, Zonisamide+Bupropion), GLP-1 agonists (Liraglutide) and herbal agents (Garcinia

cambojia, Citrus aurantium, Phaseolus vulgaris, Amorphophallus konjac) [13].

On the other hand, still to the treatment of obesity, it is observed that conservative treatment with diet, physical exercises, medication, and psychotherapy results, for the morbidly obese, in limited and generally transitory weight loss. Associated with damage to health and reduced quality of life, this favors the indication of surgical therapy in selected cases. This aims, above all, at the resolution of comorbidities [12].

The main indications for surgical treatment are for patients with grade III obesity (BMI greater than or equal to 40 kg/m²) even without comorbidities and who have not responded to conservative treatment (diet, physical exercise, psychotherapy) for at least 2 years under appropriate guidance, and patients with grade II obesity (BMI between 35 and 39.9 kg/m²) with comorbidities (chronic diseases triggered or aggravated by obesity) and who did not respond to the conservative treatment carried out for at least 2 years under proper guidance [12].

Surgical treatment can be performed using different techniques: restrictive (by reducing gastric capacity, resulting in early satiety and marked reduction in food intake), disabsorptive (by excluding an extensive segment of the small intestine from food transit, resulting in reduced capacity of food absorption) and mixed (presenting the restrictive and disabsorptive components) [12].

Diet is still one of the main forms of treatment for obesity. A study published in “the New England Journal of Medicine” concluded that the quality of the diet does not matter, that is, the proportion between the macronutrients (carbohydrates, proteins, and lipids) to be ingested, but the number of calories that the diet offers. Thus, to have an effect, the diet must be hypocaloric, regardless of the proportion of macronutrients [14]. A hypocaloric diet refers to a negative energy balance in which the amount of energy ingested is less than the amount of energy expended with resting metabolic rate, food thermogenesis, and physical activity.

In the same study, 811 people were analyzed who were submitted to 4 different types of diets. Weight loss was similar between groups and occurred mainly in the first 6 months with an average weight loss of 6 kg, approximately 7% of initial weight [14].

Thus, the study carried out corroborates the importance of drug treatment to continue the weight loss process, as diets have a shorter-term effect, since there was a significant weight loss mainly in the first 6 months and, in the following months, weight loss weight

has been reduced. In this sense, drug treatment is extremely important, combined with diet, to maintain satisfactory weight loss.

Conclusion

Based on the data collected through the answers to the applied questionnaire, whose objective was to evaluate the view of medical students from the first to the sixth year about obesity and its drug treatment, it was concluded that the extent to which students advance in the course and come into contact with obese patients and learn about the pathophysiology of obesity they tend to be in favor of drug intervention against the disease. On the other hand, students in more basic years, because they have less medical knowledge, tend to oppose drugs that help in the treatment of the disease in question. In addition, it is worth mentioning that drug treatment, combined with good eating habits and physical activity practices, is essential for obtaining positive results in the reduction of body weight in the long term in many cases of obese patients. Therefore, it is of the utmost importance that medical courses offer effective approaches to obesity, disseminate scientific knowledge related to the topic among their students, to train physicians capable of combating a chronic disease that affects more and more people. people across the world.

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Ethics approval

This study was analyzed and approved by the Research Ethics Committee of UNIFIPA, Catanduva, Sao Paulo, according to a substantiated opinion number of 053515/2022, and obtaining the patient's consent through the Informed Consent Form, according to CNS/CONEP Resolution 466/12.

Informed consent

The patient signed the consent form.

Data sharing statement

No additional data are available.

Conflict of interest

The authors declare no conflict of interest.

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References

1. Klish WJ, Skelton JA. Definition, epidemiology, and etiology of obesity in children and adolescents [Internet]. UpToDate. 2020 Oct [cited 2020 Sep 25]. Available from: https://www.uptodate.com/contents/definition-epidemiologyand-etiology-of-obesity-in-children-and-adolescents?search=obesity&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1
2. Perreault L. Obesity in adults: Prevalence, screening, and evaluation [Internet]. UpToDate. 2020 [cited 2020 Sep 25]. Available from: https://www.uptodate.com/contents/obesity-in-adults-prevalence-screeningand-evaluation?search=obesity&source=search_result&selectedTitle=2~150&usage_type=default&display_rank=2
3. Perreault L. Obesity in adults: Etiology and risk factors [Internet]. UpToDate. 2020 [cited 2020 Sep 25]. Available from: https://www.uptodate.com/contents/obesity-in-adults-etiology-and-riskfactors?search=obesity%20prevalence&source=search_result&selectedTitle=4~150&usage_type=default&display_rank=4
4. Lambert JL, Batalha MO, Sproesser RL, Silva AL, Lucchese T. As principais evoluções dos comportamentos alimentares: o caso da França. Rev. Nutr. [Internet]. 2005 Oct [cited 2020 Nov 17]; 18(5): 577-591. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1415-52732005000500001&lng=en
5. Ferreira A. P. S, Szwarcwald C. L, Damascena G. N. Prevalência e fatores associados da obesidade na população brasileira: estudo com dados aferidos da Pesquisa Nacional de Saúde, 2013. Rev. bras. epidemiol. [Internet]. 2019 [cited 2020 Nov 17]. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1415-790X2019000100420&lng=en. Epub Apr 01, 2019. <http://dx.doi.org/10.1590/1980-549720190024>.
6. Dias PC, Henriques P, Anjos LA, Burlandy L. Obesidade e políticas públicas: concepções e estratégias adotadas pelo governo brasileiro. Cad. Saúde Pública

- [Internet]. 2017 [cited 2020 Nov 17]; 33(7): e00006016. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-311X2017000705001&lng=en
- 7.** Perreault L, Arovian C. Obesity in adults: Overview of management [Internet]. UpToDate. 2020 Apr [cited 2020 Sep 25]. Available from: https://www.uptodate.com/contents/obesity-in-adults-overview-of-management?search=obesidade%20tratamento&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1#H23
- 8.** Perreault L. Obesity in adults: Drug therapy [Internet]. UpToDate. 2020 [cited 2020 Oct 13]. Available from: https://www.uptodate.com/contents/obesity-in-adultsdrug-therapy?search=obesidade%20tratamento&source=search_result&selectedTitle=2~150&usage_type=default&display_rank=2
- 9.** Mastrocola, MR, Roque, SS, Benning, LV et al. Obesity education in medical schools, residencies, and fellowships throughout the world: a systematic review. *Int J Obes* 44, 269–279; 2020 [cited 2020 Sep 25]. Available from: <https://doi.org/10.1038/s41366-019-0453-6>
- 10.** Wiese, H. J., Wilson, J. F., Jones, R. A., & Neises, M. (1992). Obesity stigma reduction in medical students. *International journal of obesity and related metabolic disorders: journal of the International Association for the Study of Obesity*. [cited 2020 Sep 25] Available from: <https://pubmed.ncbi.nlm.nih.gov/1337340/>
- 11.** Metcalf M, Rossie K, Stokes K, Tanner B. The Perceptions of Medical School Students and Faculty Toward Obesity Medicine Education: Survey and Needs Analysis [Internet]. UpToDate. 2017 Nov [cited 2020 Sep 25]. Available from: <https://mededu.jmir.org/2017/2/e22/>
- 12.** Ribas FD, Suen VMM. *Tratado de Nutrologia*. Manole, 2013.
- 13.** Yanovski SZ, Yanovski JA. Long-term Drug Treatment for Obesity A Systematic and Clinical Review [Internet]. *JAMA Network*. 2014 Jan [cited 2020 Sep 25]. Available from: <https://jamanetwork.com/article.aspx?doi=10.1001/jama.2013.281361>
- 14.** Sacks FM, Bray GA, Carey VJ, Smith SR, Ryan DH, Anton SD et al. Comparison of Weight-Loss Diets with Different Compositions of Fat, Protein, and Carbohydrates. *The new england journal of medicine*. 2009 Feb 26; 360(9); 859-73. [cited 2020 Sep 25]. Available from:

<https://pubmed.ncbi.nlm.nih.gov/19246357/>