Evaluation of nervous orthorexy and satisfaction with muscle appearance in the extreme southern catarinian

Avaliação de ortorexia nervosa e satisfação com aparência muscular no extremo sul catarinense

Evaluación de la ortorexia nerviosa y satisfacción con la apariencia muscular en el extremo sur de Santa Catarina

Beatriz Botelho Jucoski[1], Louyse Soulzbach Damázio[2]

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REVISA

1. University of the Extreme South of Santa Catarina, Department of Nutrition. Criciúma, Santa Catarina, Brazil.
https://orcid.org/0000-0002-7281-1086

2. University of the Extreme South of Santa Catarina, Graduate Program in Health Sciences. Criciúma, Santa Catarina, Brazil.
https://orcid.org/0000-0002-0710-2320

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RESUMO

Objetivo: medir a prevalência de ortorexia e avaliar a satisfação com a aparência muscular em indivíduos residentes do Extremo Sul Catarinense. **Método:** estudo quantitativo e exploratório realizado através de pesquisa de campo e corte transversal. Os pesquisadores chegaram até a amostra através de e-mails, assim como divulgação em redes sociais e em grupos de mensagens. Por meio de um link foi encaminhado o formulário do Google forms e o termo de aceite da pesquisa. O questionário foi constituído por 3 partes: um questionário; questionário do estado de saúde SF-36V2; e os questionários validados no Brasil referentes a Ortorexia (Orto-15) e escala de satisfação com a aparência muscular (MASS). **Resultados:** A avaliação da satisfação da musculatura, através do questionário MASS, 77,2% (n=180) dos indivíduos classificam-se como totalmente satisfeito com a aparência muscular. A média das idades foi de 25,9± 7,9 e IMC 23,3±3,6. **Conclusão**: São necessários novos estudos com a temáticas abordadas para melhor compreensão da dimensão destes resultados a nível estadual e nacional.

Descritores: Transtornos alimentares; Saúde mental; Saúde pública.

ABSTRACT

Objective: to measure the prevalence of orthorexia and to evaluate the satisfaction with muscle appearance in individuals living in the Extreme South of Santa Catarina. **Method:** quantitative and exploratory study carried out through field research and cross-sectional. The researchers reached the sample through e-mails, as well as dissemination on social networks and in groups of messages. Through a link, the Google forms form and the search acceptance term were submitted. The questionnaire consisted of 3 parts: a questionnaire; Health status questionnaire SF-36V2; and the questionnaires validated in Brazil regarding Orthorexia (Ortho-15) and muscle appearance satisfaction scale (MASS). **Results:** The assessment of muscle satisfaction, through the MASS questionnaire, 77.2% (n=180) of the individuals are classified as totally satisfied with the muscular appearance. The mean age was 25.9± 7.9 and BMI 23.3±3.6. **Conclusion:** Further studies are needed with the themes addressed to better understand the dimension of these results at the state and national level.

Descriptors Eating disorders; Mental health; Public health.

RESUMEN

Objetivo: medir la prevalencia de ortorexia y evaluar la satisfacción con la apariencia muscular en individuos que viven en el Extremo Sur de Santa Catarina. **Método:** estudio cuantitativo y exploratorio realizado a través de investigación de campo y transversal. Los investigadores llegaron a la muestra a través de correos electrónicos, así como de difusión en redes sociales y en grupos de mensajes. A través de un enlace, se enviaron el formulario de formularios de Google y el término de aceptación de la búsqueda. El cuestionario constaba de 3 partes: un cuestionario; Cuestionario de estado de salud SF-36V2; y los cuestionarios validados en Brasil sobre Ortorexia (Ortho-15) y escala de satisfacción de la apariencia muscular (MASS). **Resultados:** La evaluación de la satisfacción muscular, a través del cuestionario MASS, el 77,2% (n=180) de los individuos se clasifican como totalmente satisfechos con el aspecto muscular. La edad media fue de 25,9± 7,9 y el IMC de 23,3±3,6. **Conclusión:** Se necesitan más estudios con los temas abordados para comprender mejor la dimensión de estos resultados a nivel estatal y nacional.

Descriptores: Trastornos de la alimentación; Salud mental; Salud pública.

ORIGINAL

Introduction

Eating disorders (ED) are characterized as changes in behaviors related to food, resulting in changes in the consumption or absorption of food, which can significantly compromise the physical and psychosocial health of those affected.[1] The ED cases have a chronic and disabling course, and can result in biological, psychological and social damage, which lead to increased morbidity and mortality. They affect a wide age group, usually between 13 and 21 years old, and can have a fatal evolution when not treated, depending on the severity of the disease or the consequences of health problems. They are predominant in women (90%) of all social classes.[2]

There are criteria established by the World Health Organization, in the International Code of Diseases (ICD-10), and by the American Psychiatric Association, in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), to perform the diagnosis of EDs and these must preferably by a psychiatrist.[3-5] The ADs currently described in the DSM-V are: anorexia and bulimia nervosa, which have a specific diagnosis. On the other hand, some eating disorders are diagnosed as "atypical" eating disorders, and among them are Binge Eating Disorder (BED) and Night Eating Syndrome (NCS).[6]

Recently, another term has been discussed in the literature, as a pathological obsessive behavior and characterized by a change in behavior towards food, orthorexia nervosa. The term is derived from the Greek "ortho", which means "correct", and "rexia", which corresponds to appetite. It is characterized by an obsessively correct behavior, in which individuals have an appreciation for foods classified as healthy, being able to dedicate more than 3 hours a day to the diet; restrict foods such as dyes, preservatives, pesticides, genetically modified ingredients, fats, salt and sugar, as they are seen as unhealthy foods; they feel protected by having an organic, ecological and functional diet.[7]

The term Orthorexia nervosa emerged in order to be characterized as a new picture or condition that leads to an eating behavior disorder. The origin of the term was given by the American physician Steven Bratman, and it is not described in the APA's AD diagnostics manual, DSM-V, or in the ICD-10, given that the number of studies related to this topic is still precarious.[8]

Excessive concern with healthy eating, quality and quantity of food are behaviors encompassed in Orthorexia. They deprive themselves during eating, refuse social interaction so as not to impair their eating routine[9], there is a total exclusion of ultra-processed foods and artificial seasonings, they prepare their own meals with exaggerated and excessive care.[10]

Body dissatisfaction, considered a negative or obsessive evaluation that the individual has in relation to their physical appearance, triggers a negative feeling through two primary mechanisms: comparing the appearance of young people with each other and the internalization of an ideal model of thinness. Currently, the model of beauty imposed by society corresponds to a thin body for women and muscular for men.[11]

This comparison can lead the individual to an incessant search for weight loss and control, resulting in high rates of restrictive diet practices, which in turn, can bring psychological and metabolic damages and also the

appearance of eating disorders.[12] Individuals who in general, they are on restrictive diets, are excessively preoccupied with the food they consume, are more vulnerable to uncontrolled eating behaviors after a long period of food restriction, and tend to have emotional problems such as anxiety and depression. Furthermore, there is a relationship between individuals with restrictive eating behaviors and individuals diagnosed with eating disorders.

Therefore, the aim of the present study was to measure the prevalence of orthorexia and to assess satisfaction with muscle appearance in individuals residing in the extreme south of Santa Catarina.

Method

This quantitative and exploratory study was carried out through field research and cross-section, where it was possible to track orthorexia associated with satisfaction with the muscular appearance of residents of the extreme south of Santa Catarina.

The region of the extreme south of Santa Catarina is made up of 204 thousand inhabitants and comprises 15 cities, namely: Araranguá, Balneário Arroio do Silva, Balneário Gaivota, Ermo, Jacinto Machado, Maracajá, Meleiro, Morro Grande, Passo de Torres, Praia Grande, Santa Rosa do Sul, São João do Sul, Sombrio, Timbé do Sul and Turvo.

The study population consisted of individuals aged over 18 years, female and male, residents of municipalities in the extreme south of Santa Catarina, who agreed to participate in the research. The total study population was 238 people (24 men and 214 women), of which 5 were minors and were excluded from the final sample, which was 233 individuals.

The research was carried out through a questionnaire in Google Forms. The researchers reached out to the sample through emails, as well as outreach on social networks and message boards. Through a link, the Google forms and the research acceptance term were forwarded.

The questionnaire consisted of 3 parts: an adapted clinical questionnaire; health status questionnaire SF-36V2; and the questionnaires validated in Brazil referring to Orthorexia (Ortho-15) and the satisfaction scale with muscular appearance (MASS).13-16

The Brazilian version of the SF-36 Questionnaire has questions and items that encompass components represented by functional capacity, physical aspects, pain, general health status, vitality, social aspects, emotional aspects, mental health and a comparative question about the perception of current health and the last 12 months.[14] The questionnaire addresses questions regarding disposition and energy, for some day-to-day tasks and other situations, together with the health status from the point of view of the person who is performing it. The individual receives a score in each domain, ranging from 0 to 100, with 0 being the worst score and 100 the best. It is a generic questionnaire, therefore unspecific for a particular age, disease or treatment group, it has closed questions to be noted. It was developed in 1992 by Ware and Sherbourne and validated in Brazil by Ciconelli.[14]

The Ortho-15 form was included in order to identify the main characteristics of Orthorexia: attention to food; confusion when acquiring them; concern about health status; if the value of healthy food and taste are relevant,

how much time does eating take up in the routine; whether emotions, social aspects and physical aspects are connected with food; the feeding routine is considered a problem and concern; as well as body appearance. The questions have different scores where the number 1 refers to the alternative related to orthorexia and the number 4 to the healthier, non-orthorexic. So the cutoff point is <40. The questionnaire has closed questions to be highlighted. The original was prepared by Lorenzo Donini and colleagues, later translated from Italian by Pontes and collaborators, in 2014.[17]

The Muscle Appearance Satisfaction Scale (MASS) was constructed[18] and adapted and validated for Brazil[19]. This ladder assesses the satisfaction that individuals have with their own image. It consists of 19 items, with a Likert-type scale (1-NEVER to 5-ALWAYS), and is divided into different dimensions: dependence on working out, checking, satisfaction and substance use. The Satisfaction Scale is scored as follows: from 19 to 28 points = totally satisfied with the muscular appearance; from 29 to 47 points = satisfied most of the time; from 48 to 66 points = satisfied sometimes yes/ sometimes no; from 67 to 85 points = dissatisfied most of the time; and from 86 to 95 points = totally dissatisfied with the muscular appearance.[18-19]

First the data were presented in Mean and Standard Deviation or Frequency and Percentage, when applied to the variables Data were described and also presented in tables, after tabulation in Excel and processed and analyzed using Statistics Package for the Social Sciences - SPSS version 21.0.

The research was carried out after approval by the Ethics Committee for Research on Human Beings by opinion number: 3,214,711 and CAAE protocol: 09694319.8.0000.0119, based on Resolution 466/12 of the National Health Council (CNS) on the date of February 6, 2021. Research data were collected after approval by the Research Ethics Committee of UNESC, by opinion number: 3,214,711 and CAAE protocol: 09694319.8.0000.0119, based on Resolution 466/12 of the National Health Council (CNS), which provides for research with human beings. The confidentiality of the participants' identity was guaranteed and the use of data only for this scientific research and publications derived from it. Individuals who participated in the research were invited to participate after providing a detailed explanation of all procedures (objectives of the study and data collection) and were included in the research only after signing the informed consent form.

Results and Discussion

Data collection took place electronically, covered individuals from the extreme south of Santa Catarina, and took place during the month of April. Table 1 shows the sample data in relation to sex, age, BMI and SF-36, expressed as mean and standard deviation or sample number and percentage. The total sample consisted of 233 individuals, 90.1% (n=210) female and 9.9% (n=23) male. The mean age was 25.9± 7.9 and BMI 23.3±3.6, characterizing Eutrophy.[20]

In 2012, a sample of 1,222 adults aged 20-59 years and 57.3% female in Florianópolis (SC) was evaluated. The BMI and Waist Circumference (WC) with obesity classification were more present in older individuals and men. However, most of the sample in both sexes was eutrophic, as in the present study. Between 2006 and 2019, a sample of 730,309 people in private

households in the 26 Brazilian capitals and the Federal District was assessed between 2006 and 2019. A significant increase in obesity classification was observed between 2006 (42 .6%) for 2019 (55.4%), that is, around 2.05% per year.[21-22]

Regarding the quality of life questionnaire, SF-36, the mean score for functional capacity was 83.3±26.4 points, physical aspects 75.9± 25.5 points, pain 25± 20 points, general state of health 49.5 ± 14.8 points, vitality 35.6 ± 12 points, social aspects 67.6 ± 27.7 points, emotional aspects 62.3 ± 27.7 points and mental health 40 ± 12.13 points. Currently, the appearance of anxiety and depression disorders are increasingly common, especially during the current context of the COVID-19 pandemic. During the pandemic, access to bad news, confinement, lack of social interaction and idle time can trigger eating behaviors of "affective food". of food sources of anti-inflammatories and antioxidants in order to strengthen immunity. Therefore, not only one food is responsible for the individual's state of health, but the total set of their diet.[24] Thus, there is a need to, increasingly, be seeking to talk and study about psychiatric disorders and the quality of life.

The term Quality of Life (QoL) is broadly defined by the World Health Organization (WHO) as "the individual's perception of their position in life in the context of the culture and value system in which they live in relation to their goals, expectations, standards and concerns."[25] Currently, the pace of life imposed by society has a direct impact on people's quality of life, influencing physical and psychological aspects.

A study carried out at Faculdades São José, in 2013, evaluated the quality of life of 12 women who performed hydrotherapy (activities in an aquatic environment), using the SF-36 questionnaire. The survey results showed average scores above 50, which the lowest score was in the domain general health status and the highest average was in the domain physical fitness and social aspect. The physical capacity, pain and mental health dimensions were classified as Good. And the emotional aspects like Very Good.[16]

It is possible to verify that the scores of the mental health dimension of the majority of the participants are in the range of 80 to 89% (very good) and few obtained the classification of regular or below average.

Table 1- Clinical and quality of life data of adults living in the extreme south of Santa Catarina. Santa Catarina, 2021.

Variables	n=233
Sex*	
Feminine	210 (90,1%)
Male	23 (9,9%)
Age**	25,9 ± 7,9
IMC**	23,3 ± 3,6
SF-36**	
Functional capacity	83,3±26,4
Physical aspects	75,9± 25,5
Pain	25±20,9
General health Status	49,5±14,8
Vitality	35,6±12
Social aspects	67,6±27,7
Emotional aspects	62,3±27,7
Mental health	40±12,13

*Absolute and relative frequency.
**Mean and standard deviation.

Table 2 shows results referring to the MASS and Ortho-15 questionnaires, with data expressed as mean and standard deviation or sample number and percentage. The evaluation of muscle satisfaction, through the MASS questionnaire, 77.2% (n=180) of the individuals classified themselves as totally satisfied with their muscular appearance, 21.4% (n=50) as satisfied most of the time, 0.4% (n=1) satisfied sometimes yes/ sometimes no.

In the work carried out by Júnior and collaborators, the Muscle Appearance Satisfaction Scale (MASS) was also used. This study involved 60 male individuals who attended gyms in the city of Ubá (MG). The mean age of the sample was 27.08 ±5.74 years, and the mean of the MASS results was 44.33±10.85 points. Most of the sample was classified as "satisfied most of the time" and none of the subjects mentioned being "totally satisfied or dissatisfied with the muscular appearance". A significant relationship ($p<0.05$) was observed between the score and weekly practice days, where the highest score (more dissatisfaction) tends to have more weekly training days.[26]

A study carried out in Porto Alegre, evaluated 66 gym goers, of which 54.5% (n=36) were men and 45.5% (n=30) were women. The results showed significant differences between the two genders, with a higher prevalence of vigorexia in men ($p=0.034$). [26]

There needs to be a discernment between healthy eating and "pathologically healthy" eating so that a dysfunctional and dangerous restriction does not occur in the general population. This dysfunctional eating can be the gateway to several eating and image disorders, and the term has been much studied as "orthorexia nervosa" (ON), reported by Bratman and Knight, originates from the Greek orthos (correct) and orexis (appetite) classified as the fixation for health, quality and purity of food. DSM) still does not address orthorexia as an eating disorder, being characterized as a dysfunctional eating behavior.[27-28]

The first proposal for a diagnosis of Orthorexia emerged in the study by Moroze, soon after by Dunn and Bratman, in 2016, bringing responses from physical and emotional dimensions, for example, obsessive concern with practices understood by the individual as promoting health, self-imposed rules, fear of disease, feeling of impurity, shame. Over time these behaviors can progress to the exclusion of a food group or meals in order to "cleanse" for example fasting, weight loss can occur even though this is not the main objective, but also present in these cases. In addition, some behaviors are not associated with the obsession with being healthy, such as malnutrition, severe weight loss, personal anguish, beliefs, positive body image and self-esteem, as patients with orthorexia value "being healthy" and not losing weight, body defined or risk of nutrient deficiency.[29]

The first study related to orthorexia was carried out by Donini et al., in La Sapienza with employees, students and parents of students. According to the author, Orthorexia Nervosa (ON) can be diagnosed by identifying obsessive eating behavior in eating. Thus, they are classified as "health fanatics" where the choice of foods considered healthy for the individual (in natura, wholegrain, etc.) and the exclusion of unhealthy foods (frozen, canned, refined, etc.) is prioritized. In this method of analysis, "0" was used for obsessive. Thus, individuals with a score < 0.57 were classified as "health fanatics". The sample consisted of 404 people, 41.9% men and 58.1% women. Among these, 6.9%

(n=28) had orthorexia. In addition, it was observed that the age of orthorexics was slightly higher (36±17 and 33.2±14 p=0.01) and there was a prevalence in males (11.3% and 3.9% p=0.003).[30]

The first studies evaluating Orthorexia in Brazil appeared in 2009 and 2012, evaluating students in the health area. Nutrition, Pharmacy and Nursing students from a college in the interior of Rio Grande do Sul were analyzed[31], in order to identify dietary patterns, relationship between food and social environment, methods of choosing and preparing food. For this, a questionnaire was applied with questions for the diagnosis of orthorexia, based on articles by Donini. The sample consisted of 200 students, 71.5% reported having great concern with the quality of food, the classification of orthorexia was more present among students with higher economic level. The sample did not have obsessive behaviors, 79.6% do not spend most of their time thinking about the diet and only 23.6% are often chewing food, the minority restricts food, do not feel repulsed by artificial foods or distress for going out. of the diet, they eat foods that contain fat, industrialized and food does not influence social life.[32-33]

In the work by Alvarenga et al., with 392 participants from the São Paulo Professionals Association (APAN) of nutritionists, nutrition students and professionals in the area, the ORTO-15 was applied to check for orthorexia. Of the sample evaluated, 93% (n=364) were women, 3% men and 4% did not inform their gender. The mean score on the ORTO-15 was 36.08±3.73, showing a high frequency of the disorder in the studied sample.[31]

In another study, evaluating nutrition students from a university in Vale do Paraíba do Sul (SP), the authors used a silhouette scale to assess body image perception and also the ORTO-15 to assess ON. The sample consisted of 150 students, with a mean age of 23.21±6.3 and it was observed that 80.2% (n=133) presented risk behaviors for ON. The perception of body image, 74.7% (n=112) had a disorder, believed to have a silhouette larger than the BMI.[33]

Relating orthorexia and body dissatisfaction, another study carried out at the Federal University of Triângulo Mineiro (UFTM) with nutrition students, showed that 87% of those evaluated showed a tendency to orthorexia, and 57.8% showed some type of body dissatisfaction (from mild to serious). A significant association between orthorexia and body dissatisfaction (p=0.001) with greater dissatisfaction in orthorexics (p=0.005) was evaluated. There was also a significant association between orthorexia and nutritional status (p<0.05), with a higher frequency of overweight in orthorexics (p=0.010).[31]

Table 2- Satisfaction of muscular appearance and orthorexia screening of residents of the extreme south of Santa Catarina. Santa Catarina, 2021.

Variables	n=233
MASS*	24,9 ± 5,5
Totally satisfied with the muscular appearance	180 (77,2%)
Satisfied most of the time	50 (21,4%)
Satisfied sometimes yes/sometimes no	1 (0,4%)
Orto-15**	35,8 ± 4,2
Presence of Orthorexia*	180 (77,2%)

*absolute and relative frequency.
**mean and standard deviation.

Final consideration

It is concluded that there is a significant percentage for orthorexia in the population, which was not associated with body satisfaction. As there is no data for comparison at the national and regional level, this work becomes a pioneer in its proposal and an alarm data for health professionals in the region.

Updating health professionals is important at this time, as well as acquiring more information and getting to know this public better, which may be presenting a distorted view of what it means to be healthy.

New studies are needed to search for prevalence and strategies in the prevention of orthorexia.

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Autor de correspondência
Louyse Sulzbach Damázio
Universidade do Extremo Sul Catarinense
Av. Universitária, 1105 – Universitário. CEP: 88806-00.
Criciúma, Santa Catarina, Brasil.
louyse3@unesc.net