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Eating behavior of transgender people on hormoneuse

Comportamento alimentar de pessoas transgênero em hormonização

Abstract

Introduction: Hormone use among transgender individuals influences physical, biological, and psychological factors, which, in turn, affect eating behavior.

Objective: To investigate eating behavior and characteristics of food craving, mindful eating, and food neophobia in transgender men and women. **Methods:** The study included 38 transgender individuals, 25 trans men and 13 trans women, all matched by age with cisgender individuals. Data collection was conducted online, and participants completed the Dutch Eating Behavior Questionnaire (DEBQ), the Food Craving Questionnaire-State (FCQ-S) and short Trait version (FCQ-T), the Mindful Eating Scale (MES), and the Food Neophobia Scale.

Results: The eating behavior, food craving, mindful eating, and food neophobia of transgender individuals resembled both their sex assigned at birth and their gender identity. Similar patterns were observed in emotional eating, external eating, and dietary restraint, and the majority of transgender individuals (60.53%) showed neutrality regarding food neophobia. **Conclusion:** From this perspective, the findings suggest no significant differences in the influence of hormone use on the eating behavior of transgender individuals and their characteristics of food craving, mindful eating, and food neophobia. The results highlight the impact of social and psychological factors on the eating patterns of the studied population, as well as the importance of appropriate professional support, with an inclusive and competent approach, to ensure comprehensive care.

Keywords: Transgender people. Eating behavior. Craving. Mindful eating. Food neophobia.

Resumo

Introdução: A hormonização realizada pelas pessoas transgênero tem influência sobre os fatores físicos, biológicos e psicológicos, que por sua vez implicam no comportamento alimentar. **Objetivo:** Investigar o comportamento alimentar e características de *craving*, comer com atenção plena e neofobia alimentar em homens e mulheres transgênero. **Métodos:** Participaram do estudo 38 pessoas trans, sendo 25 homens e 13 mulheres, todos pareados por idade com indivíduos cisgênero. A coleta ocorreu de forma *on-line* e os participantes responderam ao Questionário Holandês de Comportamento Alimentar (QHCA), *Food Craving Questionnaire State (FCQ-S)* e *Trait* versão reduzida (FCQ-T), *Mindful Eating Scale (MES)* e a Escala de Neofobia Alimentar.

Resultados: O comportamento alimentar, *craving* alimentar, comer com atenção plena e neofobia alimentar das pessoas trans se assemelhou tanto ao sexo biológico instituído no nascimento, como ao gênero de identificação. Observaram-se padrões semelhantes de ingestão emocional, ingestão externa e restrição alimentar, e que a maioria dos indivíduos trans (60,53%) apresentou neutralidade em relação à neofobia alimentar. **Conclusão:** Nessa perspectiva, os resultados sugerem que não há diferenças significativas da influência da hormonização no comportamento alimentar de pessoas trans e suas características de *craving*, comer com atenção plena e neofobia alimentar. Ressalta-se o impacto de questões sociais e psicológicas sobre o modo de se alimentar da população estudada, bem como a importância de um acompanhamento profissional adequado, com um olhar inclusivo e capacitado, para assegurar a integralidade do cuidado.

Palavras-chave: Pessoas transgênero. Comportamento alimentar. *Craving*. Atenção plena. Neofobia alimentar.

INTRODUCTION

The concept of gender was formulated in the 1970s to distinguish the biological dimension from the social dimension; that is, it refers to the way an individual is shaped by historical, social, and cultural constructions. The perception that a person has of themselves is called gender identity, which is a subjective experience that may or may not correspond to the sex assigned at birth.¹ Transgender people, also described as trans people, are those who experience a divergence between the biological sex assigned at birth and the gender with which they identify.^{2,3}

Considering the pursuit of full identification and bodily satisfaction, some trans people opt for hormone use, associated or not with aesthetic and/or surgical procedures. However, such treatments or procedures directly influence not only physical aspects but also biological, psychological, behavioral factors, as well as well-being and quality of life.⁴

Studies have revealed a concerning prevalence of mental health outcomes in the transgender community.⁵ The predominance of anxiety symptoms can vary from 17% to 68%, with the most common outcomes being specific phobias, social phobias, panic disorder, and obsessive-compulsive disorder.⁶ Lifetime prevalence of self-reported eating disorder diagnoses by a healthcare professional is 10.5% for transgender men and 8.1% for transgender women in the United States. Risk factors for eating disorders among trans people include high body dissatisfaction, perfectionism, anxiety symptoms, and low self-esteem.⁷

For some transgender people, bodily modifications to express their intended gender are directly related to quality of life and a good relationship with their body and eating habits. A systematic review⁸ of studies on diet and nutrition in transgender people showed they have higher levels of body dissatisfaction and eating disorders compared to cisgender people. These behaviors are related to cultural expectations for the required gender, in the pursuit of greater femininity or masculinity. Thus, changes in eating behavior, such as dietary restrictions and weight manipulation, are used as strategies to achieve a socially acceptable body standard, aiming to minimize experienced discrimination.⁷

Access to bodily modifications has been an effective strategy to reduce the prevalence of body dissatisfaction and eating disorders in trans people, with the degree varying according to whether or not the process of bodily modification has started.⁸ The modifications experienced by this population due to psychosocial deconstruction, difficulties and prejudice faced, and treatments undergone can influence eating behavior, which is multidetermined by the interaction and harmonization among psychological, physiological, genetic, and environmental and/or social factors of the individual.^{9,10} The growing literature on eating disorders and mental health outcomes in the transgender population shows that trans people's experiences can influence their eating behaviors. However, this influence is measured through clinical outcomes once the outcome is already established, as in the case of eating disorders, which are characterized by severe and persistent disturbances in eating behavior, associated with distressing thoughts and emotions.^{7,8}

Considering the prevalence of these outcomes and the specific risk factors for the transgender community, we deemed it important to assess and understand the eating behavior of this population using cisgender people as a comparative parameter. In this way, we hope to contribute to reflections on eating disorder issues in trans people who use hormones.

METHODS

This is a cross-sectional, observational, and quantitative study involving cisgender and transgender men and women, conducted at the Federal University of Rio Grande do Norte – Faculty of Health Sciences of Trairi, as part of a scientific initiation project and presented as a course completion work.

Sample Selection

The sample selection was non-probabilistic, with convenience sampling in both groups – transgender and cisgender. The cisgender group (men and women) served as a comparative parameter to the transgender group regarding the assessed aspects of eating behavior. Participants were recruited through social media platforms Instagram and Twitter, using the study team's public profiles. The use of social media for recruiting hard-to-reach populations, including stigmatized groups, has proven effective for research.¹¹

Considering the study groups – transgender and cisgender – two recruitment strategies were implemented, starting from December 2019 to February 2020. The first, directed to the transgender group, considered the following inclusion criteria: being Brazilian, aged between 18 and 60 years, transgender men or women, and undergoing hormone use with or without medical supervision; and the exclusion criteria: medical diagnosis of eating disorder (bulimia, anorexia, binge eating disorder) and use of psychotropic medication.

The second recruitment strategy, directed to the cisgender group, began after the first volunteers from the transgender group completed the research collection protocol, since one of the inclusion criteria for the cisgender group was to have been born in the same year as a participant from the transgender group. Other inclusion criteria considered were: being Brazilian, cisgender men and women; the exclusion criteria were the same as those established for the transgender group. Thus, each transgender individual was age-matched with one cisgender man and one cisgender woman.

Data Collection

After receiving the Google Forms access link, participants were directed to the Informed Consent Form. Thus, after reading and agreeing to participate in the research, they proceeded to complete the questionnaires selected for the study: the Dutch Eating Behavior Questionnaire (DEBQ),⁹ the Food Craving Questionnaire State BR (FCQ-S BR),¹⁰ the reduced version of the Food Craving Questionnaire Trait BR (FCQ-T BR),¹⁰ the Mindful Eating Scale (MES),¹² and the Food Neophobia Scale (FNS),¹³ described in the box below.

Box 1. Description of the instruments applied in the research.

Instrument	Description	Scoring	Interpretation
Dutch Eating Behavior Questionnaire (DEBQ) ⁹	Assesses eating style and behavior, involving psychosocial aspects associated with food selection and consumption decisions.	Composed of 33 statements answered on a five-point Likert scale: never, rarely, sometimes, often, very often. Item 21 is reverse scored. Maximum score is 165.	The 33 items are distributed into three dimensions: dietary restraint, external eating, and emotional eating. Higher scores indicate lower eating control.
Food Craving Questionnaire State BR (FCQ-S BR) ¹⁰	"Food craving" refers to an intense desire to eat a specific food. This instrument is sensitive to contextual, psychological, and physiological state changes in response to specific situations (e.g., stress events or food deprivation), considering intense food desire as a state (sporadic) behavior.	Composed of 15 statements answered on a five-point Likert scale: strongly disagree, disagree, neutral, agree, strongly agree. Maximum score is 75.	Higher scores are associated with greater food deprivation, negative eating experiences, and higher likelihood of triggers leading to eating.
Food Craving Questionnaire Trait BR reduced version (FCQ-T BR) ¹⁰	Developed to assess aspects of intense food cravings over time and in various situations, considering them as trait (usual) behavior.	Composed of 39 statements answered on a six-point Likert scale: never/does not apply, rarely, sometimes, often, generally, always. Maximum score is 234.	Higher scores relate to overeating and higher levels of intense food cravings.
Mindful Eating Scale (MES) ¹²	Mindful eating encourages individuals to make conscious food choices attentive to physical hunger and satiety signals. Another important premise is attention to the entire eating experience.	Composed of 28 statements answered on a four-point Likert scale: never, sometimes, often, always. Except for items 6, 13, 15, and 26, all are reverse scored. Maximum score is 112.	Higher scores indicate a more conscious/intuitive eating style.
Food Neophobia Scale (FNS) ¹³	This scale addresses attitudes related to acceptance and consumption of unfamiliar foods. Neophobia is characterized by reluctance or unwillingness to try new foods.	Composed of 10 statements evaluated on a seven-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (7). The score is calculated by summing responses after reversing items 1, 4, 6, 9, and 10. Final score ranges from 10 to 70.	Results are categorized as follows: ≤30 = neophilic; 31 to 49 = neutral; ≥50 = neophobic.

Source: Author's own.

Statistical Analysis

Four distinct groups were considered for analysis: cisgender men, cisgender women, transgender men, transgender women. For descriptive and inferential statistical analysis, IBM Statistical Package for Social Sciences (SPSS) version 22.0 was used. Regarding normality, the Kolmogorov-Smirnov test was applied, showing that the data have a normal distribution ($p > 0.05$). Thus, to assess differences between groups, the independent samples Student's t-test with bootstrapping (1,000 resamplings; 95% BCa confidence interval) was used to increase result reliability, correct deviations from normality in the sample distribution and differences between group sizes, and to present a 95% confidence interval for the differences between

means.¹⁴ To identify differences between groups regarding eating behavior, bivariate analyses were used. Significance level was set at $p < 0.05$.

Ethical Criteria

This is an observational cross-sectional study conducted in Brazil. The research was approved by the Research Ethics Committee of the Federal University of Rio Grande do Norte, with approval number 4,597,149 and CAAE 18114619.5.0000.5568, according to Resolution No. 466 of December 12, 2012.

RESULTADOS

Of the 41 transgender participants initially selected, 38 were included in the sample. Three individuals were excluded: two had not started hormone use, and one was under the age of 18. Thus, the study was conducted with 38 participants—13 trans women and 25 trans men. The control group consisted of 26 men and 25 women, matched by age to the transgender participants. The mean age of the trans men group was 24.14 years, while the mean age of the trans women group was 28.06 years. Notably, 28 transgender participants reported initiating hormone use after the age of 20 (73.68%). The average duration of continuous hormone use in both groups was 4 years (± 2.77).

Medically supervised hormone use was reported by 57.89% of participants, of whom 77% were trans men and 23% were trans women. Those who did not receive medical supervision stated they sought information through various means, such as websites, hormone use forums, articles on the topic, and friends who use hormones.

Regarding eating behavior, when comparing total scores across all questionnaires between cisgender and transgender groups, no statistically significant differences were found ($p > .05$) for any data collected (Tables 1 and 2).

Analyzing data on eating behavior as assessed by the DEBQ, transgender individuals (both men and women) showed a predominance of emotional eating (TM = 35.24 ± 11.13 ; TW = 36.00 ± 12.07), followed by external eating (TM = 30.72 ± 5.91 ; TW = 30.54 ± 5.39), and restrained eating (TM = 23.52 ± 8.96 ; TW = 24.54 ± 10.56), mirroring the pattern found in the cisgender groups (men and women): emotional eating (CM = 30.29 ± 12.07 ; CW = 32.94 ± 13.39), followed by external eating (CM = 29.71 ± 3.89 ; CW = 30.83 ± 5.48) and restrained eating (CM = 22.14 ± 9.85 ; CW = 21.56 ± 6.23) (Table 1).

It is worth noting that, in relation to food neophobia, the score classifications showed that 23 transgender individuals (60.53%) were categorized as neutral in terms of their experience with trying new foods—16 were trans men (69.57%) and 7 were trans women (30.43%) (Table 2). In the cisgender group, 18 participants (56.25%) were also classified as neutral—6 men (33.33%) and 12 women (66.66%) (Table 2).

Table 1. Comparative assessment of the average scores of the Dutch Eating Behavior Questionnaire (DEBQ) among transgender and cisgender individuals in Brazil, 2021

DEBQ	TM	CM	CW	TW	p*	p**	p***	p****
Total Score	89.00 ± 16.58 (59–126)	82.00 ± 21.63 (51–125)	85.00 ± 19.85 (51–118)	91.00 ± 24.01 (47–122)	0.264	0.460	0.340	0.473
RestrainedEating	23.52 ± 8.96 (10–42)	22.14 ± 9.85 (10–35)	21.56 ± 6.23 (12–32)	24.54 ± 10.56 (11–44)	0.659	0.428	0.548	0.332
ExternalEating	30.72 ± 5.91 (20–46)	29.71 ± 3.89 (25–36)	30.83 ± 5.48 (21–38)	30.54 ± 5.39 (5–40)	0.573	0.949	0.651	0.883
EmotionalEating	35.24 ± 11.13 (16–60)	30.29 ± 12.07 (16–61)	32.94 ± 13.39 (15–58)	36.00 ± 12.37 (14–57)	0.204	0.543	0.236	0.523

Note: () = range of values between minimum and maximum; HT = transgender man; TW = transgender woman; HC = cisgender man; CW = cisgender woman;* Level determined by independent Student's t-test between HT and HC;* Level determined by independent Student's t-test between HT and HC;** Level determined by independent Student's t-test between HT and MC;*** Level determined by independent Student's t-test between MT and HC;**** Level determined by independent Student's t-test between MT and MC.

Source: Ownauthorship (2020).

Table 2.Comparative assessment of the mean scores of questionnaires related to craving and eating behavior of transgender and cisgender individuals in Brazil, 2021.

	TM	CM	CW	TW	<i>p</i> *	<i>p</i> **	<i>p</i> ***	<i>p</i> ****
FCQ-T	40.80 ± 16.50	33.64 ± 12.56	39.67 ± 18.40	33.38 ± 11.36	0.168	0.833	0.956	0.286
	(16–80)	(15–60)	(15–75)	(19–50)				
FCQ-S	42.64 ± 12.14	38.43 ± 6.95	40.11 ± 15.35	42.23 ± 12.30	0.242	0.550	0.327	0.684
	(18–70)	(24–47)	(18–67)	(15–62)				
CAP								
Total Score	79.80 ± 9.30	82.93 ± 10.84	80.94 ± 9.90	81.85 ± 9.48	0.348	0.700	0.785	0.801
	(62–95)	(66–100)	(65–96)	(66–99)				
Food Neophobia	34.36 ± 10.01	29.93 ± 14.56	33.44 ± 11.42	30.85 ± 10.46	0.268	0.782	0.853	0.523
	(19–58)	(10–61)	(13–53)	(14–51)				

Note: () = range of values between minimum and maximum; TM = transgender man; TW = transgender woman; CM = cisgender man; CW = cisgender woman; FCQ-T = Food Craving Questionnaire Trait; FCQ-S = Food Craving Questionnaire State; CAP = Mindful Eating Questionnaire; * Level determined by independent Student's t-test between HT and HC; * Level determined by independent Student's t-test between HT and HC; ** Level determined by independent Student's t-test between HT and MC; *** Level determined by independent Student's t-test between MT and HC; **** Level determined by independent Student's t-test between MT and MC. Source: Own authorship (2020).

With regard to food craving (Table 2), the mean FCQ-T score was 40.80 ± 16.50 for trans men, a value close to that of cis women ($M = 39.67 \pm 18.40$). Likewise, trans women had a mean score of 33.38 ± 11.36 , similar to that of cis men ($M = 33.64 \pm 12.56$). As previously mentioned, the FCQ-S mean scores did not show statistically significant differences ($p > .05$) between transgender and cisgender groups. However, it is worth noting that the average state craving score (FCQ-S) was higher than the trait craving score (FCQ-T) for both trans men and trans women (Table 2).

Regarding mindful eating, no statistically significant differences ($p > .05$) were found between cisgender and transgender groups (Table 2) in the dimensions of “acceptance,” “awareness,” “routine,” “distraction,” and “disinhibition.” However, the “non-reactivity” subscale showed a statistically significant difference ($p = .020$) when comparing trans women (2.54 ± 0.64) with cis men (3.09 ± 0.51). Trans women had a lower average score, with a large effect size for this difference (Glass’s Delta = 1.0784).

The overall mean score of the mindful eating questionnaire was $79.80 (\pm 9.30)$ for trans men and $81.82 (\pm 9.48)$ for trans women. This score is above average considering the maximum possible score, reflecting a higher level of conscious and attentive eating in both groups. The lowest-scoring dimensions for both trans men and trans women were “acceptance” (TM = 2.51; TW = 2.77) and “non-reactivity” (TM = 2.75; TW = 2.54). In contrast, the highest average scores were observed in the “awareness” (TM = 3.00; TW = 3.05) and “distraction” (TM = 3.20; TW = 3.38) dimensions for the same groups.

DISCUSSION

The study found that, within the sample analyzed, eating behavior among transgender individuals undergoing hormone use and cisgender individuals showed no statistically significant differences in scores obtained from the Dutch Eating Behavior Questionnaire (DEBQ),⁹ the Food Craving Questionnaire-State BR (FCQ-S BR),¹⁰ the reduced version of the Food Craving Questionnaire-Trait BR (FCQ-T BR),¹⁰ the Mindful Eating Scale (MES),¹² and the Food Neophobia Scale (FNS). This suggests that transgender individuals undergoing hormone use do not exhibit differences in eating behavior when compared to cisgender men and women.

No significant differences were observed in the mean scores of the questionnaires used to assess eating behavior between transgender individuals and cisgender individuals in the sample. However, the transgender group showed higher scores in the “emotional and external eating” dimensions, along with moderate levels of food craving, satisfactory levels of mindful eating, and a neutral classification regarding food neophobia. This contrasts with some scientific studies showing that eating behavior differs between cisgender men and women.^{15,16}

These findings reflect that physiological factors influence eating behavior in various ways, given that sex hormones modulate food intake. For example, during the menstrual cycle, hormonal fluctuations can influence appetite and food cravings.¹⁵

Nonetheless, although hormones influence food intake and eating behavior, in the case of transgender individuals—considering the influence of biological sex—hormone use may serve as a factor that reduces the development of eating disorders in this population.¹⁵ Some studies¹⁷⁻¹⁹ have reported associations between hormone use and improved psychological well-being, lower levels of body dissatisfaction, less dietary restraint, and, consequently, a reduced likelihood of developing excessive concern with body weight.²⁰

This may be explained by the fact that hormone use modifies physiological characteristics and body shape in transgender individuals, helping to mitigate the effects of social stressors such as stigmatization.

These stressors are linked to chronically elevated cortisol levels, as described in the gender minority stress theory. This results in better quality of life for these individuals and is strongly connected to social and cultural aspects of their lived experiences.²¹⁻²³

Issues related to the eating behavior of transgender individuals undergoing hormone are still largely framed by biological sex (male or female). This limits the understanding of the mechanisms that connect biological, social, and environmental factors—mechanisms that are necessary to comprehend the complexity of transgender individuals, particularly within their physiological and social contexts, including the use of hormones.²⁰ Thus, understanding the complexity of eating behavior beyond biological sex helps guide individualized strategies that support the health and well-being of this population. As demonstrated in this study, transgender individuals present diverse characteristics in eating behavior, influenced by both biological sex and hormone use.

Additionally, barriers to accessing healthcare and hormones access persist not only in Brazil but globally. These obstacles can compromise quality of life and directly or indirectly impact eating behavior.²⁴

Nonetheless, it is worth emphasizing that this study demonstrates how complex the construction of eating behavior is among transgender individuals. As observed, transgender people undergoing hormone use show similarities to cisgender men and women in terms of aspects of eating behavior. When considering nutritional care for this population, a careful evaluation of the factors that influence eating behavior, food attitudes, and consequently, food choices is of utmost importance to provide individualized and humanized nutritional care. Therefore, it is essential to select assessment tools that can support this process, as well as develop strategies that promote health and a healthy relationship with food.

Some limitations were observed throughout the study. The sample recruitment method may have introduced selection bias, as only individuals with internet access and appropriate devices were able to access the survey link shared on social media, which excluded individuals without such tools or those in greater social vulnerability. However, considering the difficulty in accessing these populations and the scarcity of studies on this topic, the data obtained already provide important insights.

There was also some resistance from transgender individuals to participate in the study, as they reported previous involvement in research that did not provide feedback, leading to a lack of motivation to participate in new studies. As a way to mitigate these losses, participants were assured that they would receive their results and an individual assessment. Although the sample size limits the generalizability of the findings, bootstrapping procedures were performed to enhance the reliability of the results. It is also worth noting that several experimental studies on eating behavior conducted with healthy transgender populations have shown similar²⁵ or smaller sample sizes.

Another point for reflection is the limited number of studies that address the health and context of transgender individuals, especially regarding eating behavior. This highlights the importance and necessity of studies like this one, which broaden the perspective on the care of this population.

CONCLUSION

Transgender individuals undergoing hormone use did not show significant differences in eating behavior when compared to cisgender individuals of both groups, men and women. This highlights the complexity involved in the structure of eating behavior within the studied transgender population.

In summary, the transgender individuals in this study did not differ from cisgender representations, male and female, in terms of eating behavior, which presents a challenge for nutrition professionals. Hence, it is essential to consider nutritional care based on individualization, from the selection of assessment tools that help the nutritionist understand the client's reality to the development of tailored dietary plans that ensure high-quality care. Nevertheless, we must not overlook the importance of reducing barriers to adequate and safe healthcare that meets the specific needs of this community.

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Contributors

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