Original Article

Recebido em: 07/11/2025 | Aceito em: 19/02/2026

Nutritional status and dietary habits of transgender individuals based on the *Dietary Guidelines for the Brazilian Population*

Estado nutricional e hábitos alimentares de indivíduos transgênero baseado no Guia Alimentar para a População Brasileira

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Resumo

Objetivo: Avaliar o estado nutricional e hábitos alimentares de indivíduos transgênero. Método: Estudo transversal realizado com pessoas transgênero provenientes da Universidade Federal de Pelotas e do Ambulatório de Nutrição Adulto da Instituição. Foram coletados dados sociodemográficos e de saúde, além de avaliado o estado nutricional dos participantes. Foi utilizada uma escala autoaplicável para avaliação da alimentação, segundo as recomendações do *Guia Alimentar para a População Brasileira*. Resultados: Foram avaliadas 19 pessoas, sendo a maioria homens trans (47,4%), com mais de 26 anos (52,6%), e que não iniciou a hormonização ou iniciou há menos de um ano (72,2%). Em relação ao estado nutricional, 50,0% encontravam-se eutróficos e 50,0% com excesso de peso. Sobre os hábitos alimentares, a maioria consumia bebida alcoólica esporadicamente e foi classificada como "você está no meio do caminho para uma alimentação mais saudável" (42,1%). Ainda, observou-se baixo consumo de frutas e alto consumo de alimentos e bebidas açucaradas. Conclusão: Os indivíduos transgênero, neste estudo, estavam eutróficos ou com excesso de peso e apresentavam, no geral, bons hábitos alimentares.
Palavras-chave: Ingestão de alimentos. Dieta saudável. Pessoas transgênero.

Abstract

Objective: To evaluate the nutritional status and dietary habits of transgender individuals. Methods: A cross-sectional study was conducted with transgender individuals from the Federal University of Pelotas and the institution's Adult Nutrition Outpatient Clinic. Sociodemographic and health data were collected, and the participants' nutritional status was assessed. A self-administered scale was used to evaluate dietary practices according to the recommendations of the *Dietary Guidelines for the Brazilian Population*. Results: Nineteen individuals were evaluated, the majority being trans men (47.4%), aged over 26 years (52.6%), and who had not initiated hormone therapy or had started it less than one year prior (72.2%). Regarding nutritional status, 50.0% were classified as eutrophic and 50.0% as having excess weight. Concerning dietary habits, most participants reported sporadic alcohol consumption and were classified as "you are on the way to a healthier diet" (42.1%). Additionally, low fruit consumption and high intake of sugary foods and beverages were observed. Conclusion: In this study, transgender individuals were either eutrophic or had excess weight and, overall, presented good dietary habits.
Keywords: Dietary Intake. Diet, Healthy. Transgender Persons.

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Introduction

Transgender individuals are defined as "people whose sense of identification aligns with expressions of behaviors regulated by a gender not typically associated with the anatomical sex identified at birth"[1]. In the 1980s, transsexuality was officially diagnosed as a pathology, referred to as "gender identity disorder." Only in 2019, during the 72nd World Health Assembly held in Geneva, was transsexuality removed from the classification of pathologies and reclassified as gender incongruence[2,3].

In Brazil, individuals identified as transgender represent approximately 0.69% of the population[4]. Within the sociodemographic profile of the Brazilian LGBTQIA+ population (an acronym for lesbian, gay, bisexual, transgender, queer, intersex, and asexual individuals), 2.15% are trans men, 1.18% are trans women, and 5.99% identify as non-binary[5].

Gender-affirming hormone therapy is a process in which trans women use oral or transdermal estrogen associated with antiandrogens, while trans men use injectable and/or transdermal testosterone. As consequence, metabolic alterations may occur, including changes in lipid profile, redistribution of body fat, and/or insulin resistance[6], making the nutritional assessment of transgender individuals particularly complex. In this context, body mass index (BMI) may serve as an auxiliary tool for assessing nutritional status, as it is an instrument that does not take sex into account. For individuals who have been undergoing hormone therapy for more than one year, neck and waist circumferences may also be used to indicate cardiometabolic risk when values exceed both cut-off points (cisnormative male or female)[5].

It is also known that transgender individuals are at greater risk of food insecurity, which directly affects their dietary habits. According to a report published by the National Association of Travestis and Transsexuals[7], approximately 90% of travestis and transsexual individuals are excluded from or expelled from their homes, which ultimately interferes with their education, career opportunities, and consequently their income. Furthermore, individuals experiencing food insecurity tend to consume diets rich in high-calorie and processed foods—such as sugary foods, foods high in fat, and those low in nutrients—thereby increasing the risk of chronic diseases such as diabetes, hypertension, obesity, and malnutrition[8]. A study conducted in Brazil with transgender individuals found that 13.3% were diagnosed as underweight, while 40.0% were classified as having excess weight[9].

Therefore, it is important to understand the dietary patterns of this population to establish public policies and specific nutritional guidelines. In this regard, the Dietary Guidelines for the Brazilian Population is a document developed by the Brazilian Ministry of Health that provides basic and freely accessible guidance on healthy eating. The guideline aims to orient and encourage the population to adopt healthier lifestyles and good dietary and sustainable practices, with an emphasis on the consumption of fresh and minimally processed foods[10].

Thus, the objective of this study was to evaluate the nutritional status and dietary habits of transgender individuals according to the *Dietary Guidelines for the Brazilian Population*.

Materials and Methods

Sample and Study Design

This was a cross-sectional study conducted with transgender individuals residing in the city of Pelotas, Rio Grande do Sul, Brazil. These individuals are from the academic community of the Federal University of Pelotas (UFPel), as well as

patients referred to the UFPel Adult Nutrition Outpatient Clinic, were invited to participate. Eligible participants were those aged 18 years or older attending their first nutritional appointment between 2022 and 2023. All individuals who agreed to participate and signed the Informed Consent Form were included in the study, with the only exclusion criterion being aged under 18 years.

To recruit participants, the study was publicized within the academic community through announcements on the university's official communication channels, social media, and through LGBTQIA+ community groups. Posters were also displayed in high-traffic locations, such as bus stops, university restaurants, and campus notice boards. Patients from the Nutrition Outpatient Clinic were referred by the Endocrinology service. Since UFPel did not yet have quantitative data regarding gender identity within the university community, and outpatient care occurs on a demand basis, a convenience sample was used.

Data Collection and Analysis

Data collection was conducted by previously trained researchers, and the questionnaire used was developed by the research team. Interviews were carried out either in person or on a virtual environment, according to the participant's preference.

The following information was collected to characterize the sample: gender (trans man, trans woman, or non-binary), age (in completed years and later categorized as 18–25 years or ≥26 years), skin color (White or Black/brown), educational level (illiterate/incomplete elementary school, complete elementary school/incomplete high school, complete high school/incomplete higher education, or complete higher education), occupation (open-ended question later categorized as studies and works, works and/or studies), and marital status (single, married, divorced, widowed). Health-related data were also collected: duration of hormone therapy (in months and later categorized as not yet initiated, up to 1 year, or more than 1 year), chronic diseases (open-ended question later categorized as yes or no), smoking status (yes, no, or former smoker), previous consultation with a nutritionist (yes or no), alcohol consumption (yes or no), type of alcoholic beverage consumed (beer, wine, distilled drinks, or other), and frequency of consumption (daily, weekly, or monthly/sporadic).

For anthropometric assessment, weight (kg) and height (m) were measured, followed by the calculation of body mass index (BMI). Body weight was measured using a Filizola® digital scale with a capacity of 150 kg and precision of 100 g. Participants were weighed wearing light clothing, barefoot, standing upright in the center of the scale, with feet together and arms extended alongside the body[11]. Height was measured using a fixed Filizola® stadiometer with a 0.1 cm scale and a maximum capacity of 220 cm. For this measurement, participants were barefoot, with arms relaxed alongside the body, positioned in the Frankfurt plane[11]. The equipment was previously calibrated, and anthropometric measurements were standardized. In cases of online interviews, self-reported weight and height were used. Nutritional status was classified based on BMI according to the World Health Organization criteria[12]: underweight (<18.5 kg/m²), normal weight (18.5–24.9 kg/m²), overweight (25.0–29.9 kg/m²), obesity class I (30.0–34.9 kg/m²), obesity class II (35.0–39.9 kg/m²), or obesity class III (>40.0 kg/m²).

Current dietary practices were assessed using the self-administered scale for dietary assessment based on the recommendations of the *Dietary Guidelines for the Brazilian Population*, in a version translated into Portuguese[13]. Since the Dietary Guidelines provide qualitative information, this scale aims to measure compliance to adequate and healthy dietary

practices, providing information about characteristics of food consumption and other dimensions based on the paradigm of adequate and healthy eating adopted by the Guidelines. The scale consists of 24 items with four response options: A = strongly disagree; B = disagree; C = agree; D = strongly agree. The scoring system is as follows: for questions 1 to 11, A = 3 points, B = 2 points, C = 1 point, and D = 0 points; for questions 12 to 24, scoring is reversed. The final score is obtained by summing the points, ranging from 0 to 72, with the following interpretation: up to 31 points = Attention, try to make your diet healthier and more enjoyable; 31–41 points = Keep going, you are on the way to a healthier diet; above 41 points = Excellent.

The data collected were registered into Microsoft Excel. Results were presented through descriptive and analytical analyses, expressed as average or percentages. The statistical software Statistical Package for the Social Sciences (SPSS) version 25.0 was used for statistical analysis of the variables of interest.

This research is part of a larger project entitled *"Eating behavior, body image, and life quality of transgender individuals living in Pelotas, RS"*, which was approved by the Research Ethics Committee of the UFPel School of Nursing under opinion number 5.651.742, in accordance with the provisions of Resolution 466/2012 of the Brazilian National Health Council.

Results

A total of 19 transgender individuals participated in this study, of whom 68.4% were referred to the Nutrition Outpatient Clinic and 31.6% were affiliated with UFPel. Among the sociodemographic characteristics of the sample, the average age was 27.3 years, with a higher prevalence of trans men. It is also noteworthy that most participants self-identified as White, had at least completed high school education, were working, and were single (Table 1).

Table 1. Sociodemographic characteristics of transgender individuals living in the city of Pelotas, RS, Brazil, 2023 (n = 19)

Variables	n	%
Gender		
Trans man	9	47.4
Trans woman	8	42.1
Non-binary	2	10.5
Age		
18 to 25 years	9	47.37
≥ 26 years old	10	52.63
Skin color		
White	16	84.2
Black or brown	3	15.8
Education		
Complete elementary / incomplete high school	4	21.1
Complete high school / incomplete undergraduate	11	57.8
Complete undergraduate	4	21.1
Occupation		
Studies and works	6	31.6
Works	9	47.3
Studies	4	21.1
Marital status		
Single	18	94.7
Married	1	5.3

Table 2 presents data related to the participants' health characteristics. Most participants had not yet initiated hormone therapy or had been undergoing hormone therapy for a short period (less than one year), did not report chronic diseases, had never smoked, and had previously received nutritional counseling. Regarding nutritional status, half of the participants were classified as having normal weight, while the other half presented excess weight.

Table 2. Health characteristics of transgender individuals living in the city of Pelotas, RS, Brazil, 2023 (n = 19).

Variables	n	%
*Duration of hormone therapy**		
Not yet initiated	4	22.2
Up to 1 year	9	50.0
More than 1 year	5	27.8
Chronic diseases		
No	13	68.4
Yes	6	31.6
Smoking status		
No	10	52.6
Yes	5	26.3
Former smoker	4	21.1
Previous consultation with a nutritionist		
No	6	31.6
Yes	13	68.4
*Nutritional status (BMI)**		
Normal weight	9	50.0
Overweight	5	27.8
Obesity	4	22.2

*n = 18.

Table 3 presents data on alcohol consumption and the assessment of dietary habits according to the *Dietary Guidelines for the Brazilian Population*. A large proportion of participants reported consuming alcoholic beverages, mostly on a monthly or sporadic basis and often more than one type of beverage. Regarding the evaluation of dietary habits, most individuals scored between 31 and 41 points, indicating dietary practices classified as "on the way to a healthier diet."

Table 3. Alcohol consumption and dietary habits according to the *Dietary Guidelines for the Brazilian Population* of transgender individuals living in the city of Pelotas, RS, Brazil, 2023 (n = 19).

Variables	n	%
Alcohol consumption		
No	4	21.1
Yes	15	78.9
*Type of alcoholic beverage**		
Beer	3	20.0
Wine	3	20.0
Spirits	1	6.7
More than one type	8	53.3
*Frequency of consumption**		
Weekly	7	46.7

Monthly or sporadic	8	53.3
Dietary Practices		
Excellent (> 41 points)	7	36.8
Keep going (31 – 41 points)	8	42.1
Attention (< 31 points)	4	21.1

* n = 15.

Regarding the questionnaire used to assess dietary habits according to the *Dietary Guidelines for the Brazilian Population*, although most participants presented an overall adequate diet, some findings deserve attention. When asked whether they usually eat fruit at breakfast, 57.9% (n = 11) of participants strongly disagreed. Similarly, when asked about consuming fruit or nuts as snacks between meals, only 47.4% (n = 9) agreed or strongly agreed with this habit. On the other hand, when questioned about frequently eating at fast-food restaurants or snack bars, 68.4% (n = 13) of participants disagreed or strongly disagreed.

The consumption of sweetened foods and beverages was also observed among participants. A total of 52.6% (n = 10) agreed or strongly agreed with the statement regarding adding sugar to coffee or tea; 47.4% (n = 9) reported agreeing or strongly agreeing with the consumption of soft drinks; and 76.7% (n = 14) agreed or strongly agreed with the habit of consuming candies, chocolates, and other sweets.

Discussion

This study aimed to evaluate the nutritional status and dietary habits of transgender individuals according to the recommendations of the *Dietary Guidelines for the Brazilian Population*, in addition to describing the sociodemographic profile of the evaluated group.

The results of the present study showed a predominance of individuals with White skin color. Similar findings were observed in another study conducted in the United States with a sample of 105 participants, in which 85.7% identified as White[8]. Regarding the sociodemographic profile of the participants, the data also indicated a predominance of individuals with complete high school or incomplete higher education and who were employed. When comparing these findings with those from two other studies conducted in the United States and Brazil[8],[9], respectively, a similar pattern was observed, with participants presenting moderate to high levels of education and some level of university education, as well as formal or informal employment. It is important to note that the sample of this study was partially composed of members of the university community, which may have contributed to the higher educational levels observed. Regarding marital status, only one participant reported being married; however, no data on marital status among transgender individuals were found in other studies.

Concerning the duration of hormone therapy, most participants had either not yet initiated hormone therapy or had started it less than one year prior. Nutritional follow-up from the beginning of hormone therapy is notably important, as some patients reported weight gain after a period of treatment[14]. Additionally, another study regarding transgender adults undergoing hormone therapy found that the most frequently reported outcomes were related to anthropometric measures, lipid profile, and bone density[15]. Furthermore, a longitudinal study followed body mass index and body weight among 470 adult transgender patients, reporting weight gain among trans men starting 2–4 months after initiating hormone therapy, with further increases after 34 months. In contrast, body weight among trans women remained stable until approximately 21 months of therapy and began to increase steadily thereafter[16].

It is also noteworthy that most participants did not report chronic diseases, which may be related to their level of education, as well as the fact that the sample consisted predominantly of young adults. In addition, a considerable proportion of participants had previously consulted a nutritionist, which may also be associated with their relatively good dietary habits.

Regarding nutritional status, half of the sample was classified as eutrophic- with proper nutrition, while the other half presented excess weight. Two studies involving transgender individuals reported similar findings, one conducted in the United States (n = 164)[17] and another in Brazil (n = 15)[9]. In the U.S. study, 53.0% of participants had adequate weight, whereas in the Brazilian study, 40.0% were classified as having excess weight.

In contrast, another study conducted in the United States[14] evaluated the nutritional status of 10 transgender men and found that 70.0% had obesity according to BMI, waist circumference, and body fat percentage. Differences in nutritional status classification methods and the characteristics of the populations studied (Brazilian versus North American) may contribute to the discrepancies observed in findings regarding the nutritional status of this population.

Concerning the alcohol consumption, a study evaluating major nutrition-related health imbalance found a high prevalence of alcohol misuse among transgender individuals[15]. In the present study, although most participants reported consuming alcoholic beverages, the majority indicated that consumption occurred on a monthly or sporadic basis, which may be considered relatively low. Similarly, in the study conducted by Linsenmeyer[14] with 10 trans men, 40.0% reported alcohol consumption at least once every three days, without exceeding recommendations for moderate intake.

Regarding dietary habits, most participants obtained scores indicating that they were either on the path toward a healthier diet or already maintaining a healthy diet. In contrast, a study conducted in the United States applied a three-day food diary to assess the dietary patterns of trans men and found that none of the participants met the recommended intake for fruits, fiber, and vegetables. Additionally, all participants reported diets high in sodium, and half reported high saturated fat intake[14].

Despite the positive findings in the present study, low fruit consumption was identified among most participants. Possible explanations for the differences between findings include the type of assessment system used in the present study, which does not allow quantitative assessment of food intake, as well as the fact that most participants had previously received nutritional counseling, which may have influenced their dietary habits.

Regarding fast-food consumption, the same study by Linsenmeyer[14] reported that 70% of participants consumed fast food at least once within a three-day period. In the present study, however, most participants reported disagreeing or strongly disagreeing when asked about this habit. This difference may be related to the fact that fast food consumption is more common in the United States due to convenience and lower cost.

Additionally, despite the generally positive results observed in this study, a high consumption of sweetened beverages was identified, such as soft drinks and the addition of sugar to coffee and tea. Furthermore, participants reported frequent consumption of sugary foods such as candies, chocolate, and other sweets. These foods and beverages contain high levels of added sugars, raising concerns that excessive consumption may significantly contribute to weight gain and the development of non-contagious chronic diseases[18].

It is also important to consider that transgender populations may be more

vulnerable due to barriers such as limited access to quality food, discrimination, and lack of social support[7]. However, the findings of this study did not confirm this assumption, as the evaluated population demonstrated relatively healthy dietary habits and overall diet quality.

Regarding the limitations of this study, the combination of in-person and online interviews reduced the possibility of collecting certain data, such as skin color and anthropometric measurements. Skin color was self-reported, and BMI was used as the only anthropometric indicator. Furthermore, in cases where interviews were conducted online, self-reported weight and height were used. Another limitation concerns the instrument used to assess dietary habits, which does not include information about quantities consumed, potentially influencing the evaluation of dietary intake.

Finally, further studies on this topic are needed to obtain more specific information regarding the dietary habits of the Brazilian transgender population, which would support the development of targeted nutritional intervention strategies.

Conclusion

In this study, transgender individuals were classified as having normal weight or some degree of excess weight and, overall, demonstrated good dietary habits. These findings highlight the importance of evaluating and monitoring this population to maintain adequate nutrition and, consequently, promote a good quality of life. Furthermore, additional studies are needed to further investigate the dietary habits of transgender individuals.

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How to cite this article:

Kopf TB, Martins Filho AOF, Moraes LS, Roland LF, Castilhos CB, Matos LA, Borges LR, Bertacco RTA, Hautrive TB, Marques AC. Nutritional status and dietary habits of transgender individuals based on the Dietary Guidelines for the Brazilian Population. Rev. Aten. Saúde. 2026; e202610110(24). doi https//doi.org/10.13037/ras.vol24.e202610110