REVISTA DE NUTRIÇÃO
Brazilian Journal of Nutrition

ORIGINAL

Clinical Nutrition

Editor
Carla Cristina Enes

Conflict of interest
The authors declare that there are no conflicts of interest.

Received
December 16, 2022

Final version
November 22, 2023

Approved
Mach 26, 2024

Habits and eating behaviors of patients with mental disorders

Hábitos e comportamentos alimentares de pacientes com transtornos mentais

Júlia Franco Maciel[1], Renata Franco Maciel[2], Phelipe Brito de Miranda[2], Tamiris Mariane Dourado de Siqueira[3], Andhressa Fagundes[1]

[1] Universidade Federal de Sergipe, Departamento de Nutrição, Programa de Pós-Graduação em Nutrição. São Cristóvão, SE, Brasil. Correspondence to: A FAGUNDES. E-mail: <afagundes16@gmail.com>.
[2] Universidade Tiradentes, Departamento de Medicina, Faculdade de Medicina. Aracaju, SE, Brasil.
[3] Universidade Federal de Sergipe, Departamento de Nutrição, Faculdade de Nutrição. São Cristóvão, SE, Brasil.

Article based on the master's thesis of JF Maciel, entitled "*Comportamento alimentar e fatores associados em pacientes com trantorno mental*". Universidade Federal de Sergipe; 2021.

How to cite this article: Maciel JF, Maciel RF, Miranda PB, Siqueira TMD, Fagundes A. Habits and eating behaviors of patients with mental disorders. Rev Nutr. 2024;37:e220270. https://doi.org/10.1590/1678-9865202437e220270

ABSTRACT

Objective
Associate behaviors and eating habits of patients with mental disorders and related factors that may affect their quality of life.

Methods
Adult male and female patients, diagnosed with mental disorders, answered a questionnaire about personal and sociodemographic data, with disease-related questions, history of body weight, eating habits and behavior (dietary restrictions, emotional eating, lack of control over food, and intense desire to eat). Pearson's Chi-square and Fisher's Exact Tests were performed for categorical variables, and simple and multiple logistic regression was applied for significant variables (p<0.10). The level of significance was set at 5%.

Results
A total of 120 individuals participated in the study; 63.3% of them were males. There was a 44.2% risk of developing Dietary Restrictions, 31.7% for Emotional Eating, 25.8% for Intense Desire to Eat and 24.2% for Uncontrolled Eating. Overweight decreased the likelihood of developing Intense Desire to Eat (ACR=0.289), as well as the habit of snacking (ACR=0.362). It also decreased the likelihood of developing Emotional Eating. Factors that contributed to increasing the likelihood were: not taking any action for weight loss (ACR=3.628), and participation in meal preparation (ARCa=2.264), for Emotional Eating and Food Restriction, respectively.

Conclusion
The study variables for eating behavior are related to psychiatric treatment, and the characteristics of the patients' eating habits negatively affect the likelihood of developing certain risky eating behaviors with a high potential to negatively affect these patients' health and quality of life.

Keywords: Body image. Feeding behavior. Mental disorders. Psychiatry.

RESUMO

Objetivo

Associar comportamentos e hábitos alimentares de pacientes com transtornos mentais a fatores que possam influenciar a qualidade de vida desses indivíduos.

Métodos

Pacientes adultos, de ambos os sexos e com diagnóstico de transtornos mentais, responderam a um questionário sobre dados pessoais, sociodemográficos, questões relacionadas à doença, histórico sobre o peso corporal, hábitos e comportamento alimentares (restrição alimentar, alimentação emocional, descontrole alimentar e desejo intenso de comer). Foram realizados testes de Qui-quadrado de Pearson e Teste Exato de Fisher para variáveis categóricas e foi aplicada regressão logística simples e múltipla para variáveis significativas (p<0,10). O nível de significância adotado foi de 5%.

Resultados

120 indivíduos participaram do estudo, sendo 63,3% do sexo masculino. Foi encontrado 44,2% de risco de desenvolver Restrição Alimentar, 31,7% de Alimentação Emocional, 25,8% de Desejo Intenso de Comer e 24,2% Descontrole Alimentar. O sobrepeso diminuiu as chances de desenvolver o Desejo Intenso de Comer (RCa=0,289), assim como o hábito de beliscar (RCa=0,362) também diminuiu as chances de desenvolver Alimentação Emocional. Foram fatores que contribuíram aumentando as chances: não realizar nenhuma ação para perda de peso (RCa=3,628), e participação no preparo de refeições (RCa=2,264), para Alimentação Emocional e Restrição Alimentar, respectivamente.

Conclusão

As variáveis de comportamento alimentar estudadas possuem relação com o tratamento psiquiátrico, e as características dos hábitos alimentares dos pacientes interferem negativamente nas chances de desenvolver determinados comportamentos alimentares de risco com elevado potencial de influenciar negativamente na saúde e na qualidade de vida desses pacientes.

Palavras-chave: *Imagem corporal. Comportamento alimentar. Transtornos mentais. Psiquiatria.*

INTRODUCTION

Patients with Mental Disorders (MD) have high rates of obesity, resulting in increased cardiovascular risks and associated clinical comorbidities, as well as worsened quality of life and life expectancy. MDs are highly prevalent in the global society; according to data from the World Health Organization (WHO), it affects approximately 1 in every 10 individuals [1].

It is known that the mortality rate in this population is up to 3 times higher when compared to the general population, with the most frequent causes being suicide and morbidity/mortality from Non-Communicable Chronic Diseases (NCDs) [2,3].

Several factors may be associated with weight gain in this population and there is a high prevalence of associated comorbidities: side effects of psychotropic drug use, health-related issues, dietary habits, and the Eating Behaviors (EB) of these patients.

Overall, obesity is associated with unhealthy dietary habits, physical inactivity, and lifestyle. It is known that the formation of dietary habits involves EB and encompasses various contexts, such as biological, social, psychological, affective, and cultural aspects [4]. Recognizing the EB of patients with MDs is important for planning more effective psychiatric treatment [5], as well as proposing interventions and nutritional strategies aimed at improving the quality of life and clinical outcomes of these patients.

Thus, the main objective of this study was to associate the eating behaviors and habits of patients with MDs with related factors that may affect their quality of life.

METHOD

The study participants were individuals over 18 years of age, of both male and female, and with established psychiatric diagnoses. The study was conducted at a hospital institution located in Sergipe, a state in the Brazilian Northeast, dedicated to the treatment of patients with mental disorders. The São Marcello Rest Clinic is a benchmark in mental health; it is the only facility for the care of MD patients in the state, providing inpatient services and outpatient consultations.

Inclusion criteria for the study were being clinically and cognitively able to answer the questionnaire and agreeing to sign the Informed Consent Form (ICF). Exclusion criteria were having a diagnosis of an eating disorder and/or being in a psychiatric crisis.

To define sample size, a sampling plan was developed based on the number of patients seen at the São Marcello Clinic in the last 5 years prior to the research (2015 to 2019). For a finite population [6], with a margin of error of 6% and a confidence level of 95%, 119 participants were required for the study.

A questionnaire specifically designed and previously tested for this study was applied. It was based on and adapted from previous studies on the research theme, with recommendations from the Dietary Guidelines for the Brazilian Population, and EB questionnaires. The instrument was composed of four sections: (1) sociodemographic data, (2) questions about health and psychiatric treatment, (3) history of body weight, and (4) eating behavior and habits. The Eating Behavior (EB) section included questions from the Three Factor Eating Questionnaire [7] and the Food Craving Questionnaire [8]. Evaluation was carried out through questions that referred to behaviors: Dietary Restriction (DR), Uncontrolled Eating (UE), Emotional Eating (EE), and Intense Desire to Eat (IE). Patients responded on a 1 to 4 agreement scale. Subsequently, a score of 0 to 100 was generated for each type of EB. Patients with risky EB were those with a score of ≥50%.

For assessment of nutritional status, body weight (kg) and height (m) were measured for calculation of Body Mass Index (BMI), and Waist Circumference (WC) (cm) for assessment of cardiovascular disease risk. Patients were classified by nutritional status according to the Technical Standards of the Food and Nutritional Surveillance System [9]. The instruments used were: digital scale, stadiometer, and inelastic tape measure.

Patients were recruited in the waiting room of outpatient consultations and hospitalization, with guidance from clinic professionals for those who were clinical, cognitive, and psychological aptitude to answer the questionnaire, followed by nutritional assessment, between September and October 2020.

Categorical variables were described using absolute and relative frequency, and continuous variables, using mean and standard deviation. The hypothesis of independence between categorical variables was tested using Pearson's Chi-Square tests with Monte Carlo simulations and Fisher's Exact tests. Simple and multiple logistic regression was applied for variables significant at 10%, and kept when significant at 5% by the Backward method controlling the model for sex, age, use of psychotropic drugs, and psychiatric diagnoses. The level of significance was set at 5%, and the software R Core Team 2021 was used.

Participants were informed about the objectives, procedures, risks and benefits of the study, and they only participated in the study after signing the ICF, after appropriate clarifications. Although minimal, risks such as intellectual and/or emotional discomfort, as well as the possibility of embarrassment and fatigue, were presented when answering the questionnaire. The researchers

made efforts to minimize these events by conducting the interview in a comfortable, quiet, private location, ensuring the confidentiality of information.

Furthermore, it was stressed that there are no direct and/or individual benefits for the participants, and no procedures that pose a health risk, nor will any expenses of any kind be incurred. The findings of the study can contribute to the characterization of the eating behavior of psychiatric patients, provide support for the implementation of actions targeted at this population, and improve the level of nutritional interventions and specific approaches. The project was approved by the Research Ethics Committee of the Federal University of Sergipe under Opinion no. 3.555.747.

RESULTS

A total of 120 patients participated in the study, 63.3% of whom were males, with a mean age of 42.6 (SD±13.2) years, and 96.6% were native to the Northeast region. Most participants self-reported as mixed race (56.7%), followed by white (20.8%) and black (13.3%). Regarding current employment status, 30.0% were retired, 28.3% were employed, and 26.7% were unemployed.

The most frequent psychiatric diagnoses among the patients were: schizophrenia (43.3%), substance dependence (30.8%), and depression (20.0%). The majority of participants in this study had access to psychiatric treatment through private health insurance (63.3%), followed by 36.7% from the Sistema Único de Saúde (SUS, Unified Health System).

Risk frequencies for eating behaviors were identified as follows: 44.2% for Dietary Restriction, 31.7% for Uncontrolled Eating, Emotional Eating, and 25.8% for Intense Desire to Eat. Table 1 shows the relationship between these Eating Behaviors according to variables of interest regarding health and psychiatric treatment, history of body weight, and eating habits.

The exclusion of certain foods from the dietary routine was analyzed with outcomes for variables that could interfere, such as religion, oral health problems, professional guidance, and desire for weight change (Table 2). The excluded foods were compiled into a Word Cloud, where font size is proportional to the prevalence of responses (Figure 1).

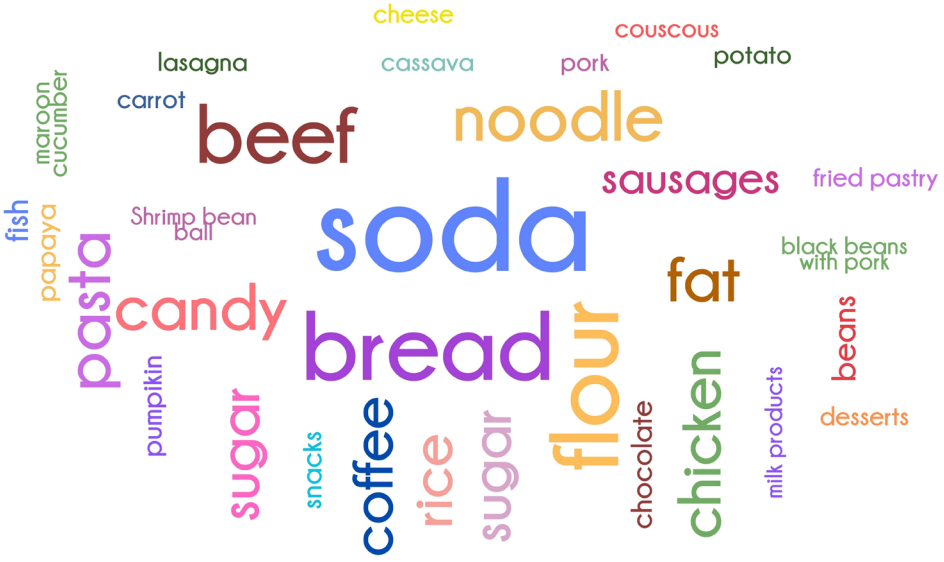

Figure 1 – Word Cloud with foods excluded by patients.

Table 1 – Association of eating behaviors with variables of interest (health, weight history and eating habits). Sergipe, Brazil, 2020.

Variables	Food restriction		Eating Disorder		Emotional Eating		Intense desire to eat	
	n (%)	*p*-value[Q-]	n (%)	*p*-value[Q-]	n (%)	*p*-value	n (%)	*p*-value
Sex								
Feminine	19 (35.8)	0.869	11 (37.9)	0.871	13 (34.2)	0.704	13 (41.9)	0.48
Masculine	34 (64.2)		18 (62.1)		25 (65.8)		18 (58.1)	
Psychiatric diagnosis[a]								
Schizophrenia	28 (52.8)	0.062	12 (41.4)	0.807	14 (36.8)	0.329	12 (38.7)	0.546
Depression	8 (15.1)	0.232	4 (13.8)	0.337	7 (18.4)	0.768	9 (29.0)	0.144
Anxiety	3 (5.7)	0.159	3 (10.3)	0.943	4 (10.5)	0.896	2 (6.5)	0.444
Chemical dependency	16 (30.2)	0.892	12 (41.4)	0.158	17 (44.7)	**0.025**	10 (32.3)	0.842
Psychopharmaceuticals[a]								
Anxiolytics and Hypnotics	25 (47.2)	0.475	19 (65.5)	0.069	25 (65.8)	**0.026**	20 (64.5)	0.077
Mood Stabilizers	23 (43.4)	0.523	15 (51.7)	0.531	17 (44.7)	0.773	11 (35.5)	0.147
Antipsychotics	48 (90.6)	0.366	26 (89.7)	0.687	34 (89.5)	0.656	27 (87.1)	0.937
Antidepressants	7 (13.2)	0.197	4 (13.8)	0.468	5 (13.2)	0.319	7 (22.6)	0.478
Other pathologies								
Diabetes	5 (9.4)	0.366	2 (6.9)	0.295	4 (10.5)	0.656	0 (0.00)	**0.015**
Hypertension	8 (15.1)	0.681	3 (10.3)	0.294	8 (21.1)	0.380	4 (12.9)	0.514
Dyslipidemias	6 (11.3)	0.467	3 (10.3)	0.801	2 (5.3)	0.313	4 (12.9)	0.402
No pathologies	36 (67.9)	0.793	22 (75.9)	0.370	27 (71.1)	0.120	24 (77.4)	0.248
Use of medication to lose weight	6 (11.3)	0.879	2 (6.9)		3 (7.9)	0.761	3 (9.7)	0.81
Physical activity								
Active	34 (64.2)	0.323	16 (55.2)	0.615	26 (68.4)	0.160	19 (61.3)	0.78
Inactive	19 (35.8)		13 (44.8)		12 (31.6)		12 (38.7)	
Fear of changing one's weight	27 (50.9)	0.096	13 (44.8)	0.085	14 (436.8)	0.393	15 (48.4)	0.528
Desire to change one's weight								
To win	10 (18.9)	0.553	3 (10.3)	0.223	10 (26.3)	0.183	6 (19.4)	0.255
Lose	29 (54.7)		17 (58.6)		14 (36.8)		19 (61.3)	
No	14 (26.4)		9 (31.0)		14 (36.8)		6 (19.4)	
Actions already carried out or being carrying out								
Is careful about food choices	25 (47.2)	0.556	16 (55.2)	0.171	11 (28.9)	**0.022**	17 (54.8)	0.165
Seeks professional guidance	9 (17.0)	0.296	4 (13.8)	1,000	2 (5.3)	0.090[F-]	6 (19.40)	0.356[F-]
Does not do anything	23 (43.4)	0.634	13 (44.8)	0.901	26 (68.4)	**0.001**	14 (45.20)	0.931
Nutritional Profile								
Eutrophy	15 (28.3)	0.444	12 (41.4)	0.598	10 (26.3)	0.09	15 (50.0)	**0.008**
Overweight	20 (37.7)		10 (34.5)		12 (31.6)		6 (20.0)	
Obesity	18 (34.0)		7 (24.1)		16 (42.1)		9 (30.0)	

Note: [a]: More than one answer; [Q-]: Chi-Square Test; [F-]: Fisher's Exact Test. n: Absolute frequency; %: Percentage relative frequency. Bold text indicates statistical significance.

Additionally, Table 2 shows some dietary habits of patients with mental disorders and behavioral guidelines mentioned in the Brazilian Dietary Guidelines for the Population in a descriptive manner. Table 3 shows an association between the recommendations of the Brazilian Dietary Guidelines and the risk of developing eating behaviors. Meal preparation, meal planning, eating meals with others, seeking culinary skills, and snacking habits were relevant factors, where there was an association with eating behaviors.

A logistic regression analysis was conducted considering health variables, history of body weight, and behavioral guidelines from the Brazilian Dietary Guidelines, adjusted and controlled for sex, age, use of psychotropic drugs, and psychiatric diagnoses (Table 4).

Table 2 – Description of eating habits of patients with mental disorders and relationship of their characteristics with the exclusion of foods. Sergipe, Brazil, 2020.

Eating habits	n	%	*p*-value
Food exclusion			
Yes	39	32.5	
No	81	67.5	
Reasons for exclusion			
Avoiding weight gain	12	32.4	
Health/illness	13	35.1	
Professional guidance	2	5.4	
Personal preference	10	27.0	
Place for shopping for food[a]			
Supermarket	84	70.0	
Grocery store	61	50.8	
Street fruit and vegetable fairs	85	70.8	
Fast food restaurants	8	6.7	
Food delivery applications	9	7.5	
Restaurants	7	5.8	
Meal duration			
Less than 15 min	73	60.8	
Between 15 min and 30 min	34	28.3	
Between 30 min and 1 hour	12	10.0	
More than 1h	1	0.8	
Meal location			
At home, with homemade food	108	90.0	
At home, with purchased food	11	9.2	
At work, with the homemade food I bring	3	2.5	
In a restaurant or cafeteria, but I bring homemade food	1	0.8	
Eat meals outside your home, in a restaurant	2	1.7	
Advice from the Dietary Guidelines for the Brazilian Population[a]			
Influence of advertising	51	42.5	
Eating routine	77	64.3	
Meal planning	56	46.7	
Meal preparation	66	55.0	
Regular place for meals	107	89.2	
Shopping for food	70	58.3	
Considering the cropping season	39	32.8	
Meals with others	90	75.0	
Cultivation of vegetable gardens	46	38.3	
Learning cooking skills	52	43.3	
Nibbling habit	62	52.7	
Exclusion of foods from one's routine			
Catholics	18	46.2	0.437[Q] -
Evangelicals	13	33.3	
Spiritists	3	7.7	
Does not follow any religion	5	12.8	
Oral problems?			
Yes	9	23.1	0.202 _ [Q]
No	30	76.9	
Exclusion advised by nutritionist?			
Yes	16	41.0	**0.002[F]** -
No	23	59.0	
Desire to change one's weight?			
Yes, gain	4	10.3	**0.008[Q]**
Yes, lose	27	69.2	
No	8	20.5	

Note: [a]: More than one response per patient; [Q]: Chi-Square Test. [F]: Fisher's Exact Test. n: Absolute frequency; %: Percentage relative frequency. Bold text indicates statistical significance.

Table 3 – Association between dietary guide recommendations and eating behaviors. Sergipe, Brazil, 2020.

Variables	Food restriction		Eating Disorder		Emotional Eating		Intense desire to eat	
	n (%)	*p*-value[Q]	n (%)	*p*-value[Q]	n (%)	*p*-value[Q]	n (%)	*p*-value[Q]
Influence of advertising	23 (45.1)	0.86	14 (27.5)	0.470	15 (29.4)	0.648	13 (25.5)	0.941
Eating routine	37 (48.1)	0.251	19 (24.7)	0.862	23 (29.9)	0.571	16 (20.8)	0.091
Meal planning	26 (46.4)	0.641	14 (25.0)	0.842	19 (33.9)	0.618	20 (35.7)	0.021
Meal preparation	35 (53.0)	0.031	17 (25.8)	0.653	21 (31.8)	0.969	22 (33.3)	0.038
Regular place for meals	49 (45.8)	0.303	24 (22.4)	0.202	33 (30.8)	0.577	29 (27.1)	0.362
Shopping for food	29 (41.4)	0.475	19 (27.1)	0.368	22 (31.4)	0.947	23 (32.9)	0.380
Considering the cropping season	18 (46.2)	0.651	12 (30.8)	0.445	15 (38.5)	0.447	12 (30.8)	0.599
Meals with others	42 (46.7)	0.339	21 (23.3)	0.712	23 (25.6)	0.013	23 (25.6)	0.904
Cultivation of vegetable gardens	23 (50.0)	0.31	12 (26.1)	0.698	14 (30.4)	0.819	15 (32.6)	0.181
Learning cooking skills	24 (46.2)	0.701	14 (26.9)	0.537	11 (21.2)	0.03	18 (34.6)	0.055
Nibbling habit	25 (40.3)	0.318	17 (27.4)	0.389	13 (21.0)	0.009	18 (29.0)	0.408

Note: n: Absolute frequency; %: Percentage relative frequency. [Q]: Chi-Square Test.

Table 4 – Logistic regression of the study eating behaviors. Sergipe, Brazil, 2020.

Eating Behavior	CR (95% CI)	RCa (95% CI)	*p*-value
Intense desire to eat			
Meal planning	2.286 (0.701-7.460)	-	-
Meal preparation	2.979 (0.918-9.666)	-	-
Purchase of food	2.359 (0.651-8.557)	-	-
Learning cooking skills	2.603 (0.788-8.602)	-	-
Days of hospitalization	0.996 (0.988-1.004)	-	-
Eutrophy	1	1	-
Overweight	0.289 (0.085-0.990)	0.289 (0.085-0.990)	**0.048**
Obesity	0.483 (0.103-2.261)	0.483 (0.103-2.261)	0.356
Emotional Eating			
Being careful about one's diet	0.363 (0.145-0.910)	-	-
Seeking professional guidance	0.262 (0.048-1.425)	-	-
Doing physical activity	0.448 (0.179-1.118)	-	-
No action to change weight	4,385 (1,744-11.026)	3,628 (1.403-9.380)	**0.008**
No dental problems	0.406 (0.156-1.037)	-	-
Shared meals	0.386 (0.153-0.988)	-	-
Learning cooking skills	0.299 (0.104-0.819)	-	-
Nibbling habit	0.287 (0.119-0.692)	0.362 (0.147-0.889)	**0.027**
Eutrophy	1	1	-
Overweight	1.186 (0.407-3.457)	-	-
Obesity	4,349 (1.321-14.316)	-	-
Food restriction			
Shopping at a neighborhood market	2.110 (0.945-4.714)	-	-
Participation in meal preparation	2,782 (1.140-6.792)	2.624 (1.038-6.635)	**0.042**
Eating Disorder			
Taking actions to lose weight	3.023 (1.088-8.403)	-	-

Note: Logistic regression controlled for sex, age, use of psychotropic drugs and psychiatric diagnoses. CI: Confidence interval; RC: Controlled Odds Ratio; RCa: Adjusted Odds Ratio. Bold text indicates statistical significance.

DISCUSSION

According to the most recent version of the Brazilian Dietary Guidelines, eating is characterized not only by nutrient intake but also by the relationship with characteristics of eating behavior, cultural dimensions, and social aspects of eating practices [10]. Eating habits are described as "learned and repeated behaviors automatically performed" [11]. This study evaluated variables potentially related to Eating Behavior in patients with mental disorders.

There was no association between patients' sex and the presence of risk for developing the study eating behaviors, although studies show that females are more prone to developing such behaviors owing to emotional fragility, aesthetic pressure. Furthermore, some studies have found

females to be more prevalent in mental disorders [5]. However, 63.3% of this sample consisted of males, which may have affected the results.

An association was found between patients with substance dependence and Emotional Eating (p=0.025). In the context of substance-dependent individuals, the withdrawal situation induces emotional changes in them, which can also affect eating behaviors, demonstrating the influence of emotional states on hunger perception, as a compensatory mechanism for the absence of psychoactive substances [12].

Anxiolytics and hypnotics are part of the drug classes used in mood disorders such as anxiety and depression, which are directly related to emotions [13]. The association between these two elements supports such claims. Furthermore, Emotional Eating is also associated with patients who performed actions aimed at modifying body weight.

A systematic review conducted in the UK, which evaluated disordered eating behaviors in patients with diabetes [14], showed that the urgent desire to eat, termed Intense Desire to Eat behavior, was associated with the presence of diabetes. This can be explained by the restrictive-compulsive cycle generated by the restriction of certain nutrients, causing an excessive desire to eat.

When evaluating dietary routines and habits, it was found that 32.5% of the sample had already excluded some food from their dietary routine. Attempts were made to associate this with the presence of any religion, as part of sociocultural influences on dietary choices, but no statistically significant associations were found, although there is a relationship between culture and people's dietary choices [4].

Oral health problems that interfered with eating were also not associated with the exclusion of any food, indicating that patients had physical conditions to maintain a standard diet, although it is documented that this population has poor oral health owing to lack of dental hygiene [15].

Of the patients who excluded foods, 59.0% had no nutritional guidance for this decision, which signals the need for the inclusion of nutrition professionals in multidisciplinary teams to provide care for patients with mental disorders, and enable correct interventions for the prevention of chronic diseases in this population [16].

Additionally, the findings also validate the perpetuation of unnecessary dietary restrictions without professional guidance. Access to information on the Internet has reinforced the idea of trendy diets (such as the ketogenic, paleolithic, and detox diets, among others) as a promise of rapid weight loss through severe dietary restrictions, especially of macronutrients. These diets are advocated without professional guidance and take an aesthetic rather than therapeutic approach [17].

Given this scenario, when evaluating the reasons for food exclusion, health issues (35.1%) and the desire to avoid weight gain (32.4%) were mentioned. There was a statistically significant association (p=0.008) for the desire to change one's weight and food exclusion from the routine.

The analysis of excluded foods, ultra-processed foods such as soft drinks, processed meats, salami, sausage, and calabrese, with high energy value and low nutritional quality, were most cited. According to the Brazilian Dietary Guidelines [10], these foods should be avoided as they negatively impact people's health, increasing the risk of obesity and NCDs [18], as reported in international [19] and Brazilian studies [20].

Other foods such as bread, flour, pasta, potatoes, and couscous were also among the most cited by patients, and they all have carbohydrates in common. The so-called low-carb diets advocate the restriction of this nutrient at the expense of others, under various justifications, and have become

popular as one of the strategies for weight loss, predisposing users to the development of eating disorders [17,21,22].

In line with the advice from the Brazilian Dietary Guidelines [10], most patients ate meals with others and in the same location, which indicates adherence to the guidelines as regards commensality as an act of socialization [23]. However, in terms of time spent on eating meals, the majority of respondents (50.8%) reported spending less than 15 minutes, failing to follow the guidelines of the Brazilian Dietary Guidelines and causing trouble to their food digestion, as well as ignoring the hunger-satiation signals. Although a lower income is one of the barriers to following proper nutritional guidance, good eating behaviors do not depend on income and budget, and they are conducive to good health [24].

Most interviewees reported eating meals at home, which may help them choose healthier foods when compared to groups that eat out, according to a study conducted in the Brazilian Northeast [25]. These data are relevant even for patients who were hospitalized, as they were asked about habits prior to hospitalization.

Logistic regression analysis was performed to explain the odds of developing Eating Behaviors (IE – Intense Desire to Eat; EE – Emotional Eating; DR – Dietary Restriction; UE – Uncontrolled Eating), and it showed that overweight participants had lower odds ratios for having IE. This finding contradicts those of other studies that relate binge eating to the practice of excessive food intake and report that overweight individuals are more likely to exhibit this behavior [26]. This difference in results may be due to the fact that in most study samples with EB there are more females than males, unlike this one.

Regarding EE, this study found that individuals who took no action to change their weight had higher odds of Emotional Eating. Although no studies were found that had addressed this relationship, this behavior can be justified by the emotional fragility of these individuals, i.e., their emotional state controls food-related mechanisms, in a compensatory mechanism, to the detriment of other activities to change body weight.

The habit of "snacking" appeared to generate lower odds of EE, possibly as one of the ways to "dodge" this behavior during main meals since eating can also be seen as comfort [27]. Another interpretation of this finding is that the habit of "snacking" as a form of greater diet fractionation induces less emotional hunger in patients.

Dietary Restriction appeared to be influenced by patients who participated in meal preparation, most likely because they assumed control of preparations and, therefore, presented cognitive control of restriction as a behavior at mealtime. However, a study conducted in São Paulo found no association between cognitive restraint and good adherence to nutritional treatment [28], and another one showed that the higher the BMI, the higher the cognitive restraint score [29].

No variables were found to increase or decrease the odds of developing UE, most likely owing to a limitation of the instrument being used. However, some recent studies found a relationship between the presence of UE and EE, indicating that these dysfunctional behaviors seem to have a mechanism in common [7,28].

This study had a few limitations: it is a cross-sectional study; therefore, it cannot assess outcomes as cause and effect; the sample was small, as it was conducted during the pandemic; and there was no control group without psychiatric disorders for comparison of the study variables. Because there were no validated surveys for psychiatric patients, an instrument was exclusively designed for this study, based on the literature, on guiding research questions, and on other questionnaires.

CONCLUSION

The present study identified variables associated with the eating behavior of patients with mental disorders, such as substance dependence, the use of anxiolytics and hypnotics, and nutritional profile. It was found that patients take actions to change their body weight, such as excluding foods from their meals, although such actions are not supported by nutritional guidance. Overweight decreases the odds of developing Intense Desire to Eat, while the habit of "snacking" throughout the day decreases the odds of Emotional Eating. Participation in meal preparation increased the risk of developing Dietary Restriction. Further longitudinal studies are needed to establish whether there is a cause-effect relationship between the study variables.

This study, by addressing the close relationship between eating behaviors and psychiatric disorders, contributes to clinical practice by identifying groups and risk factors that can trigger inappropriate eating behaviors. Therefore, strategies can be devised to reduce the deleterious impacts caused by eating habits and practices, as these behaviors act as negative intervening factors for clinical outcomes and nutritional and psychiatric treatment.

REFERENCES

1. WHO. World Health Statistics 2016: Monitoring health for the SDGs, sustainable development goals. World Health Organization; 2016.
2. Newcomer JW, Hennekens CH. Severe mental illness and risk of cardiovascular disease. JAMA. 2015; 298:1794-6. https://doi.org/10.1001/jama.298.15.1794
3. Surtees PG, Wainwright NWJ, Luben RN, Wareham NJ, Bingham SA, Khaw K. Depression and ischemic heart disease mortality: Evidence from the EPIC-Norfolk United Kingdom prospective cohort study. Am J Psychiatry. 2008;165:515-24. https://doi.org/10.1176/appi.ajp.2007.07061018
4. Alvarenga M, Koritar P, Moraes J. Atitude e comportamento alimentar – Determinantes de escolhas e consumi. In: Alvarenga M, Figueiredo M, Antonaccio C, organizadores. Nutrição comportamental. 2. ed. Barueri: Manole; 2019. p. 25-56.
5. Küçük L, Kaya H, Çömez T, Kaçar S, Kutlu Y, Zülfikar H. Eating behaviors and related factors in psychiatric patients. Arch Psychiatr Nurs. 2017;32(2):194-9. https://doi.org/10.1016/j.apnu.2017.10.015
6. Miot HA. Tamanho da amostra em estudos clínicos e experimentais. J Vasc Bras. 2011;10(4):275-8. https://doi.org/10.1590/S1677-54492011000400001
7. Natacci LC, Ferreira Junior M. The three factor eating questionnaire – R21: Tradução para o português e aplicação em mulheres brasileiras. Rev Nutr. 2011;24(3):383-94. https://doi.org/10.1590/S1415-52732011000300002
8. Medeiros ACQ De, Yamamoto ME, Pedrosa LFC, Hutz CS. Brazilian version of food cravings questionnaires: Psychometric properties and sex differences. Appetite. 2016;105:328-33. https://doi.org/10.1016/j.appet.2016.06.003
9. Brasil. Orientações para a coleta e análise de dados antropométricos em serviços de saúde: Norma Técnica do Sistema de Vigilância Alimentar e Nutricional – SISVAN. Brasília: Ministério da Saúde, Secretaria de Atenção à Saúde, Departamento de Atenção Básica; 2011.
10. Brasil. Guia alimentar para a população brasileira. 2nd ed. Brasília: Ministério da Saúde; 2014.
11. Alvarenga M, Figueiredo M, Timerman F, Antonaccio C. Nutrição comportamental. 2nd ed. Barueri: Manole; 2019.
12. Cowan J, Devine C. Food, eating, and weight concerns of men in recovery from substance addiction. Appetite. 2008;50(1):33-42. https://doi.org/10.1016/j.appet.2007.05.006
13. Azevedo DSS, Lima EP, Assunção AÁ. Fatores associados ao uso de medicamentos ansiolíticos entre bombeiros militares. Rev Bras Epidemiol. 2019;22:e190021. https://doi.org/10.1590/1980-549720190021
14. Winston AP. Eating disorders and diabetes. Curr Diab Rep. 2020;20:32. https://doi.org/10.1007/s11892-020-01320-0

15. Kenny A, Dickson-Swift V, Gussy M, Kidd S, Cox D, Masood M, et al. Oral health interventions for people living with mental disorders: Protocol for a realist systematic review. Int J Ment Health Syst. 2020;14:24. https://doi.org/10.1186/s13033-020-00357-8

16. Teasdale SB, Samaras K, Wade T, Jarman R, Ward P. A review of the nutritional challenges experienced by people living with severe mental illness: A role for dietitians in addressing physical health gaps. J Hum Nutr Diet. 2017;30(5):545-53. https://doi.org/10.1111/jhn.12473

17. Passos JA, Vasconcellos-Silva PR, Santos LA da S. Ciclos de atenção a dietas da moda e tendências de busca na internet pelo Google trends. Cien Saude Colet. 2020;25(7):2615-31. https://doi.org/10.1590/1413-81232020257.23892018

18. Romeiro ACT, Curioni CC, Bezerra FF, Faerstein E. Determinantes sociodemográficos do padrão de consumo de alimentos: Estudo Pró-Saúde. Rev Bras Epidemiol. 2020;23:e200090. https://doi.org/10.1590/1980-549720200090

19. Mendonça RD, Pimenta AM, Gea A, de la Fuente-Arrillaga C, Martinez-Gonzalez MA, Lopes ACS, et al. Ultraprocessed food consumption and risk of overweight and obesity: The University of Navarra Follow-Up (SUN) cohort study. Am J Clin Nutr. 2016;104(5):1433-40. https://doi.org/10.3945/ajcn.116.135004

20. Canella DS, Levy RB, Martins APB, Claro RM, Moubarac J-C, Baraldi LG, et al. Ultra-processed food products and obesity in Brazilian households (2008–2009). PLoS One. 2014;9(3):e92752. https://doi.org/10.1371/journal.pone.0092752

21. Oliveira J de, Figueredo L, Cordás TA. Prevalência de comportamentos de risco para transtornos alimentares e uso de dieta "low-carb" em estudantes universitários. J Bras Psiquiatr. 2019;68(4):183-90. https://doi.org/10.1590/0047-2085000000245

22. Vargas AJ, Pessoa LS, Rosa RL. Jejum intermitente e dieta Low Carb na composição corporal e no comportamento alimentar de mulheres praticantes de atividade física. Rev Bras Nutr Esport. 2018;12(72):483-90.

23. Oliveira MSS, Santos LAS. Guias alimentares para a população brasileira: Uma análise a partir das dimensões culturais e sociais da alimentação. Cien Saude Colet. 2020;25(7):2519-28. https://doi.org/10.1590/1413-81232020257.22322018

24. Lindemann IL, Oliveira RR, Mendoza-Sassi RA. Dificuldades para alimentação saudável entre usuários da atenção básica em saúde e fatores associados. Cien Saude Colet. 2016;21(2):599-610. https://doi.org/10.1590/1413-81232015212.04262015

25. Cavalcante JB, Moreira TMV, Mota CC, Pontes CR, Bezerra IN. Ingestão de energia e nutrientes segundo consumo de alimentos fora do lar na Região Nordeste: Uma análise do Inquérito Nacional de Alimentação 2008–2009. Rev Bras Epidemiol. 2017;20(1):115-23. https://doi.org/10.1590/1980-5497201700010010

26. Albergaria R, Pimenta F, Maroco J, Leal I, Albergaria T, Bicudo MJ. Binge eating in obesity: Mainland Portugal and São Miguel, Azores. Psicol Saúde Doen. 2017;18:699-711. https://doi.org/10.15309/17psd180306

27. Barre LK, Ferron JC, Davis KE, Whitley R. Healthy eating in persons with serious mental illnesses: Understanding and barriers. Psychiatr Rehabil J. 2011;34(4):304-10. https://doi.org/10.2975/34.4.2011.304.310

28. Biagio LD, Moreira P, Amaral CK. Comportamento alimentar em obesos e sua correlação com o tratamento nutricional. J Bras Psiquiatr. 2020;69(3):171-8. https://doi.org/10.1590/0047-2085000000280

29. Julien Sweerts S, Fouques D, Lignier B, Apfeldorfer G, Kureta-Vanoli K, Romo L. Relation between cognitive restraint and weight: Does a content validity problem lead to a wrong axis of care? Clin Obes 2019;9(5):e12330. https://doi.org/10.1111/cob.12330

ACKNOWLEDGMENT

The authors would like to thank everyone who supported the completion of this study, for their availability and interest in contributing.

CONTRIBUTORS

Conceptualization: MACIEL, J.F., FAGUNDES, A.; Data curation, Formal Analysis, Methodology, Writing (original draft and review): MACIEL, J.F., MACIEL, R.F., MIRANDA, P.B., SIQUEIRA, T.M.D., FAGUNDES, A.