



ORIGINAL ARTICLE

## Nutritional status, food intake and cardiovascular disease risk in individuals with schizophrenia in southern Brazil: A case-control study<sup>☆</sup>

Daniela Nunes<sup>a,b</sup>, Bianca Eskinazi<sup>b</sup>, Fernanda Camboim Rockett<sup>b,c</sup>,  
Vera Beatriz Delgado<sup>d</sup>, Ingrid Dalira Schweigert Perry<sup>b,e,\*</sup>

<sup>a</sup> Residência Integrada Multiprofissional em Saúde com ênfase em Saúde Mental, Hospital de Clínicas de Porto Alegre, Porto Alegre, Brazil

<sup>b</sup> Centro da Pesquisa em Nutrição e Dietética, Hospital de Clínicas de Porto Alegre/Universidade Federal do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil

<sup>c</sup> Post-Graduation Program in Medicine, Medical Sciences, Universidade Federal do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil

<sup>d</sup> Serviço de Enfermagem Psiquiátrica, Hospital de Clínicas de Porto Alegre, Porto Alegre, Brazil

<sup>e</sup> Serviço de Medicina Interna, Universidade Federal do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil

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### KEYWORDS

Schizophrenia;  
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Overweight;  
Food intake

### Abstract

**Objectives:** To verify food consumption patterns and presence of risk anthropometric parameters in schizophrenic patients, trying to assess some modifiable cardiovascular risk.

**Method:** Twenty-five schizophrenic outpatients, attended at the Hospital de Clínicas de Porto Alegre, Brazil, and 25 healthy controls matched by sex, age and body mass index (BMI) were included. Demographic (age, sex and socioeconomic status), anthropometric (weight, height and waist circumference), clinical (antipsychotics) and dietary consumption data (food frequency questionnaire) were obtained.

**Results:** There was a 40% frequency of overweight and 40% of obesity as verified by BMI, and 80% of increased risk of metabolic complications as measured by waist circumference. Most of the patients (68%) used atypical antipsychotics and no association was found between the distribution of the nutritional status according to BMI and type of antipsychotic used. There was a higher intake of total calories, calories and protein per kilogram of body weight, percentage of carbohydrates, and lower intake of omega-6, phytosterols, vitamin A and α-tocopherol by cases. Cholesterol and sodium intake did not differ between groups ( $365 \pm 152$  mg of

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\* Corresponding author.

E-mail address: [atputp@gmail.com](mailto:atputp@gmail.com) (I.D. Schweigert Perry).

cholesterol in cases and  $313 \pm 146$  mg in controls; ( $3499 \pm 1695$  mg sodium by cases and  $2874 \pm 800$  by controls).

**Conclusion:** In this sample of schizophrenic patients there was a higher intake of calories and lower consumption of  $\alpha$ -tocopherol and phytosterols, compared to controls. There was also elevated sodium, and cholesterol intake, and high frequency of overweight and central obesity.

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## PALABRAS CLAVE

Esquizofrenia;  
Enfermedades  
cardiovasculares;  
Obesidad;  
Sobrepeso;  
Ingesta de alimentos

## Estado nutricional, ingesta alimentaria y riesgo de enfermedad cardiovascular en individuos con esquizofrenia en el sur de Brasil: estudio de casos-controles

### Resumen

**Objetivos:** Verificar los patrones de ingesta alimentaria y la presencia de parámetros antropométricos de riesgo en pacientes esquizofrénicos, al mismo tiempo que tratamos de valorar algunos factores de riesgo cardiovascular modificables.

**Métodos:** Se incluyeron 25 pacientes ambulatorios esquizofrénicos, atendidos en el Hospital de Clínicas de Porto Alegre, Brasil, y a 25 individuos de control, sanos, emparejados por sexo, edad e índice de masa corporal (IMC). Se obtuvieron las características demográficas (edad, sexo y posición socioeconómica), antropométricas (peso, estatura y perímetro de la cintura), clínicas (antipsicóticos) y datos del consumo de alimentos (cuestionario de frecuencia de alimentos).

**Resultados:** Hubo una frecuencia de sobrepeso del 40% y de obesidad del 40%, según lo verificado por el IMC, y un aumento del riesgo de complicaciones metabólicas del 80%, según lo determinado por el perímetro de la cintura. La mayoría de pacientes (68%) utilizaban antipsicóticos atípicos y no se encontró una asociación entre la distribución del estado nutricional de acuerdo con el IMC y el tipo de antipsicótico usado. Entre los casos se identificó una mayor ingesta de calorías totales, calorías y proteínas por kilogramo de peso corporal, porcentaje de hidratos de carbono y una menor ingesta de ácidos grasos omega 6, fitoesteroles, vitamina A y  $\alpha$ -tocopherol. La ingesta de colesterol y de sodio no difirió entre el grupo de casos ( $365 \pm 152$  mg de colesterol en los casos y  $313 \pm 146$  mg en los individuos de control;  $3.499 \pm 1.695$  mg de sodio entre los casos y  $2.874 \pm 800$  entre los individuos de control).

**Conclusión:** En la muestra de pacientes esquizofrénicos del presente estudio se observó un mayor consumo de calorías y un menor consumo de  $\alpha$ -tocopherol y fitoesteroles, comparado con individuos de control. También fue evidente una ingesta elevada de sodio y colesterol y una alta frecuencia de sobrepeso y obesidad centripeta.

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## Introduction

Schizophrenia is a chronic psychiatric illness, involving psychopathological manifestations of thought, perception, emotion, movement and behavior, causing considerable social functioning damage.<sup>1</sup> People with schizophrenia have a mortality rate two times higher and 20% lower life expectancy than the general population because of higher prevalence and severity of clinical conditions. Despite suicide has been considered as the main cause of death, these patients often suffer from common diseases, cardiovascular diseases are the leading cause of death, as the general population.<sup>2</sup>

Obesity, which has a high prevalence in patients with schizophrenia and is associated with the disease itself or the use of antipsychotics,<sup>3</sup> is a major risk factor for the development of cardiovascular disease in these patients, since it is closely related to the development of dyslipidemia, insulin resistance, diabetes and hypertension. Although it is known that food intake pattern has great influence in the etiology of these diseases in the general population, there is little research describing food patterns and food preferences among patients suffering from schizophrenia.<sup>4</sup>

One of the few studies focusing on these aspects showed that individuals with schizophrenia consumed more high fat and sugar food when compared with healthy controls. In contrast, they consumed less milk and dairy products, fresh vegetables and fruits.<sup>5</sup>

Excess of dietary energy, simple carbohydrates, saturated fatty acids (SFA), cholesterol and sodium are considered a risk factor for chronic diseases and obesity.<sup>6</sup> On the other hand, the consumption of fiber, phytosterols, antioxidants, and unsaturated fatty acids, especially omega-3, is related to the prevention of different diseases, with effects on cardiovascular health.<sup>7,8</sup>

In addition to these aspects, it is possible that dietary factors aggravate or relieve the symptoms of schizophrenia. Christensen and Christensen<sup>8</sup> found that there is an association between low intake of total fat and animal fat sources that are mainly composed of SFA and improvement of disease prognosis. Additionally, it was shown that low intake of omega-3 fatty acids especially eicosapentaenoic acid (EPA) is associated with more severe symptoms of schizophrenia.<sup>9</sup>

Thus, we highlight the relevance of studies to verify food consumption patterns and presence of risk anthropometric

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