Tobacco use among women receiving treatment in a psychosocial care center

Uso de tabaco em mulheres acompanhadas em um centro de atenção psicossocial

Uso del tabaco en mujeres acompañadas en un centro de atención psicosocial

Lúcia Margarete dos Reis[1]
Aroldo Gavioli[2]
Viviane Rosa Figueiredo[3]
Magda Lúcia Félix de Oliveira[4]
Ana Carla Efing[5]

Abstract

Objective: Analyze sociodemographic and clinical factors associated with the use of tobacco-based products among women with mental and behavioral disorders receiving treatment in a psychosocial care center.

Methods: This is a prevalence study, with a random sample of 181 women, 18 years of age or older, diagnosed with mental and behavioral disorders according to the International Classification of Diseases. Data were collected between August 2016 and April 2017, via telephone interviews with the study participants. The data underwent statistical treatment using descriptive analysis and measurements of central tendency.

Results: Among the 181 women interviewed, 24.9% used tobacco-based products, and the following aspects predominated in the study population: 40 to 49 years of age; brown race/color; one to eight years of study; income ranging from one to less than two minimum wages; does not work outside the home; does not live with a partner, and Catholic religion. Forty-nine of the women (27.1%) reported comorbidities, mainly arterial hypertension, and diabetes mellitus, where there was a relationship with tobacco-based product use (p=0.049).

Conclusion: The prevalence of tobacco-based product use among women with mental and behavioral disorders was high, compared to the general female population, and was associated with the presence of clinical comorbidities.

Resumo

Objetivo: Analisar fatores sociodemográficos e clínicos associados ao uso de produtos derivados do tabaco em mulheres com transtornos mentais e comportamentais acompanhadas em um centro de atenção psicossocial.

Métodos: Trata-se de estudo de prevalência, com uma amostra aleatória de 181 mulheres com idade igual ou superior a 18 anos, com diagnóstico médico de transtornos mentais e comportamentais segundo a Classificação Internacional de Doenças. A coleta de dados foi realizada no período de agosto de 2016 a abril de 2017, por meio de entrevista telefônica com as participantes do estudo. Os dados foram submetidos a tratamento estatístico por meio de análise descritiva e medidas de tendência central.

Resultados: Dentre as 181 mulheres entrevistadas, 24,9% faziam uso de produtos derivados do tabaco, predominando as mulheres com: idade entre 40 a 49 anos, raça/cor parda, escolaridade entre um e oito anos estudados, renda entre um e menos que dois salários mínimos, sem trabalho fora de casa, ausência de residência com companheiro, e com religião católica. Quarenta e nove mulheres (27,1%) relataram comorbidades, principalmente Hipertensão Arterial Sistêmica e Diabetes Mellitus, apresentando relação com o uso de produtos derivados de tabaco (p=0,049).

Conclusão: A prevalência do uso de produtos derivados de tabaco em mulheres com transtornos mentais e comportamentais é elevada se comparada à população geral feminina, e tem relação com a presença de comorbidades clínicas.

Resumen

Objetivo: Analizar factores sociodemográficos y clínicos asociados con el uso de productos derivados del tabaco en mujeres con trastornos mentales y comportamentales, acompañadas en un centro de atención psicosocial.

Métodos: Se trata de un estudio de prevalencia, con una muestra aleatoria de 181 mujeres con edad igual o superior a 18 años, con diagnóstico médico de trastornos mentales y comportamentales según la Clasificación Internacional de Enfermedades. La recolección de datos fue realizada en el período de agosto de 2016 a abril de 2017, por medio de una entrevista telefónica con las participantes del estudio. Los datos fueron sometidos a tratamiento estadístico a través de análisis descriptivo y medidas de tendencia central.

Resultados: Entre las 181 mujeres entrevistadas, un 24,9% hacía uso de productos derivados del tabaco, predominando las mujeres con: edad entre 40 y 49 años, raza / color pardo, escolaridad entre uno y ocho años estudiados, ingresos entre uno y menos de dos salarios mínimos, sin trabajo fuera de casa, ausencia de residencia con compañero, y con religión católica. Cuarenta y nueve mujeres (27,1%) relataron comorbilidades, principalmente Hipertensión Arterial Sistémica y Diabetes Mellitus, presentando relación con el uso de productos derivados del tabaco (p = 0,049).

Conclusión: La prevalencia del uso de productos derivados del tabaco en mujeres con trastornos mentales y comportamentales es elevada si se compara con la población general femenina, y tiene relación con la presencia de comorbilidades clínicas.

Corresponding author
Lúcia Margarete dos Reis
http://orcid.org/0000-0002-4837-3944
Email: luciamargarete@gmail.com

[1]Faculdade Santa Maria da Glória, Maringá, PR, Brazil.
[2]Hospital Universitário Regional de Maringá; Maringá, PR, Brazil.
[3]Hospital e Maternidade Santa Rita de Maringá, Maringá, PR, Brazil.
[4]Universidade Estadual de Maringá, Maringá, PR, Brazil.
[5]Pontifícia Universidade Católica do Paraná, Curitiba, PR, Brazil.
Conflicts of interest: none.

Introduction

Prevalence of the use of tobacco among women in Brazil has been relatively low (13.1%), compared to men (21.6%). In Brazil, smoking has been decreasing among men, whereas it has remained stable among women.[1] Although data in Brazil on the prevalence of tobacco use has indicated a drop in the number of users of these products, women have greater difficulties quitting and they start smoking earlier.[2,3] Work overload, constant family demands and the contradictions that women experience and face in modern society can strengthen the habit of smoking.[4]

It is also known that women are more susceptible to mood disorders, such as depression and anxiety, or feelings of sadness or loneliness. In this context, tobacco has been used as a form of self-medication to alleviate symptoms of depression. Some studies have reported higher depression scores, greater use of alcohol and more compulsive eating among women who smoke than among those who do not.[4-6] This behavior increases cigarette consumption and the risks nicotine dependence.[7]

A multicenter study carried out with 2,475 patients to estimate the prevalence of tobacco use and the factors associated with it among psychiatric patients in Brazil found a prevalence of 52.7% of smokers. The prevalence of tobacco-based product use among people with mental disorders was higher, compared to the general population.[8]

It is worth noting that, among the 50% of psychiatric patients who smoked, only 15% were able to quit smoking, whereas of the corresponding 25% of smokers in the general population, approximately 50% successfully quit.[9] People with mental disorders seem to be more vulnerable to nicotine dependence, due to its positive effect on mood, anxiety, and cognition.[10] On the other hand, symptoms of mental disorders are more intensely manifested among users of tobacco-based products, with a higher frequency of delusions and hallucinations, suicide ideation and attempts, and psychiatric hospitalizations.[11,12]

The association between mental disorders and tobacco-based product use has not been studied much. Most of the existing studies are school-based, with different age ranges and distinct criteria for defining mental problems.[13] In this sense, the present article seeks to answer the question: What sociodemographic and clinical factors are associated with the use of tobacco-based products? The objective was to examine the sociodemographic and clinical factors associated with the use of tobacco-based products among women with mental and behavioral disorders receiving treatment in a psychosocial care center.

Methods

This was a prevalence study which used a random probabilistic sample, carried out in a psychosocial care center in the northern region of the state of Paraná, from August 2016 to April 2017.

The sample size calculation used a bilateral confidence interval of 95% with a proportion of 50%. Based on a 50% prevalence of tobacco-based product users in a population with mental disorders, and that there were 250 women registered with the psychosocial care center, the sample studied was comprised of 181 women. They were considered eligible to participate in the study if they were 18 years of age or older and had been medically diagnosed in accordance with Chapter V - Mental and behavioral disorders (F00-F99) from the International Classification of Diseases (ICD-10), and the disorder was registered on the patient's medical record. The women were included in the study based on a random selection from the patient database of the psychosocial care center. The 19 losses, due to refusal to participate or no diagnosis registered on the patient's medical record, led to another random selection of nine women in order to complete the study sample.

The data was collected via a phone interview using a structured questionnaire with questions related to sociodemographic variables – age, race/color, years of study, income, employment status, marital status and religion; variables related to the use of tobacco-based products – use (yes/no), age when they first started smoking, type of product used and

amount smoked per day, length of time between waking up and use of tobacco-based products, and attempts to quit smoking in the last 12 months; and clinical variables – presence of comorbidities and medical diagnosis of mental and behavioral disorders. Only the medical diagnosis variable was collected from the patient's medical record.

The mental disorders were grouped according to ICT-10 as follows: organic including symptomatic, mental disorders; mental and behavioral disorders due to psychoactive substance use; schizophrenia, schizotypal and delusional disorders; mood disorders; neurotic, stress-related and somatoform disorders; behavioral syndromes associated with physiological disturbances and physical factors; disorders of adult personality and behavior; mental retardation; disorders of psychological development; behavioral and emotional disorders with onset usually occurring in childhood and adolescence; and mental disorder, not otherwise specified.

The variables were described through absolute and relative frequency distribution and measurements of central tendencies. To test the association between the dependent variable (tobacco use) and the independent variables (sociodemographic, related to the use of tobacco-based products, and clinical), the chi-square test for proportions was used. For crosses that had expected values lower than 5 in more than 20% of the cells, Fisher's exact test was used. A significance level of $p<0.05$ was adopted, and all the analyses were done using SPSS software, version 23.0.

The study was approved by the Research Ethics Committee of PUCPR (Opinion No. 2.013.959). During the telephone interview, the interviewer used a standard text for inviting the women to participate in the study, along the lines of the free and informed consent form for guiding the ethical precepts of the study.

Results

The mean age of the women interviewed was 44.9 years (SD=13.9); the median was 46 years and the mode was 52 years, with a minimum age of 18

years and a maximum of 82 years. The prevalence of tobacco-based product use was 24.9%, with a predominance of the following aspects: aged 40 to 49 years (14 – 31.1%), race/color brown (23 – 51.1%), years of study from one to eight years (26 – 57.8%), income ranging from one to less than two minimum wages (35 – 77.8%), does not work outside the home (38 – 84.4%), does not live with a partner (29 – 64.4%), and Catholic religion (30 – 66.7%) (Table 1).

Table 1. Frequency distribution of women according to use of tobacco-based products and sociodemographic variables

Variables	Use of tobacco-based products			p-value
	No n(%)	Yes n(%)	Total n(%)	
Age (years)				
18 to 29	23(16.9)	4(8.9)	27(14.9)	0.530
30 to 39	24(17.6)	7(15.6)	31(17.1)	
40 to 49	33(24.3)	14(31.1)	47(26.0)	
50 to 59	40(29.4)	12(26.7)	52(28.7)	
60 ≥	16(11.8)	8(17.8)	24(13.3)	
Race/Color				
Yellow	3(2.2)	-(-)	3(1.7)	0.776
White	55(40.4)	18(40.0)	73(40.3)	
Brown	68(50.0)	23(51.1)	91(50.3)	
Black	10(7.4)	4(8.9)	14(7.7)	
Years of study				
None	24(17.6)	6(13.3)	30(16.6)	0.873
1 to 4	33(24.3)	13(28.9)	46(25.4)	
5 to 8	46(33.8)	13(28.9)	59(32.6)	
9 to 11	22(16.2)	9(20.0)	31(17.1)	
12 ≥	11(8.1)	4(8.9)	15(8.3)	
Income (MW)*				
None	2(1.5)	3(6.7)	5(2.8)	0.056
>1	11(8.1)	6(13.3)	17(9.4)	
1 < 2	107(78.7)	35(77.8)	142(78.5)	
2 or more	16(11.8)	1(2.2)	17(9.4)	
Works outside home				
No	106(77.9)	38(84.4)	144(79.6)	0.238**
Yes	30(22.1)	7(15.6)	37(20.4)	
Lives with partner				
No	83(61.0)	29(64.4)	112(61.9)	0.411**
Yes	53(39.0)	16(35.6)	69(38.1)	
Religion				
Catholic	77(56.6)	30(66.7)	107(59.1)	0.115**
Other	59(43.4)	15(33.3)	74(40.9)	
Total	136(75.1)	45(24.9)	181(100.0)	

*Based on the minimum wage (MW) in 2017, corresponding to BRL 937; **Fisher's exact test

Among the 45 female tobacco-based product users, 39 (86.7%) started using them during childhood and adolescence; eight started under 11 years of age. The mean age reported for starting to smoke was 14.3 years (SD=3.7). Manufactured cig-

arettes were the main product choice of 38 women (84.4%) and most (24 – 53.3%) smoked 11 to 20 cigarettes per day, with a mean of 17.7 (SD=9.7) cigarettes. The only hookah user reported using it once or twice a week. Twenty-one women said they used tobacco-based products within 30 minutes of waking up; 10 women (22.2%) lit up their first cigarette of the day within five minutes of waking up. Nineteen women (42.2%) had attempted to quit smoking; in the sample studied, 14 women (7.7%) were former smokers and had quit longer than 12 months ago (Table 2).

Table 2. Frequency distribution of women according to variables related to tobacco-based product use

Variables	n(%)
Age at start of use (years)	
Less than 11	8 (17.8)
12 to 17	31 (68.9)
18 ≥	6 (13.3)
Type of product	
Manufactured cigarette	38 (84.4)
Straw cigarette	6 (13.3)
Hookah	1 (2.2)
Amount smoked	
Less than 10	14 (31.1)
11 to 20	24 (53.3)
21 ≥	7 (15.6)
Time between waking up and use	
Up to 30 minutes	21 (46.7)
31 to 60 minutes	24 (53.3)
Attempts to quit	
No	26 (57.8)
Yes	19 (42.2)
Total	45 (100.0)

It was noted in the sample studied that 49 women (27.1%) reported the presence of clinical comorbidities, mainly arterial hypertension (37 – 20.4%) and diabetes mellitus (16 – 8.8%), Among the 45 smokers, 17 (37.8%) had clinical comorbidities: 11 had arterial hypertension and six had diabetes mellitus (Table 3).

Of the 45 tobacco-based product users, 24 (53.3%) had been diagnosed with mood disorders (ICD group 10 F30 - F39). In a lower frequency, schizophrenia, schizotypal and delusional disorders (ICD group 10 F20 - F29) were registered on the medical records of 12 women (26.7%). No statistical significance between tobacco-based product use, the sociodemographic variables, and mental and

Table 3. Frequency distribution of women according to tobacco-based product use and clinical variables

| Variables | Use of tobacco-based products | | | |
	No n(%)	Yes n(%)	Total n(%)	p-value
Comorbidities				
No	104 (46.4)	28 (62.2)	132 (72.9)	0.049*
Yes	32 (23.5)	17 (37.8)	49 (27.1)	
Arterial Hypertension				
No	110 (80.9)	34 (75.6)	144 (79.6)	0.285
Yes	26 (19.1)	11 (24.4)	37 (20.4)	
Diabetes mellitus				
No	126 (92.6)	39 (86.7)	165 (91.2)	0.176
Yes	10 (7.4)	6 (13.3)	16 (8.8)	
Mental disorders (ICD 10)				
Organic and symptomatic	9 (6.6)	5 (11.1)	14 (7.7)	0.346
Schizophrenia and delusional	37 (27.2)	12 (26.7)	49 (27.1)	
Mood	60 (44.1)	24 (53.3)	84 (46.4)	
Neurotic, stress-related, somatoform	20 (14.7)	3 (6.7)	23 (12.7)	
Adult personality and behavior	2 (1.5)	-	2 (1.1)	
Mental retardation	8 (5.9)	1 (2.2)	9 (5.0)	
Total	136 (75.1)	45 (24.9)	181 (100.0)	

*Fisher's Exact Test

behavioral disorders was noted. However, there appears to be a positive association between smoking and the presence of clinical comorbidities.

Discussion

In this type of study, obtaining the frequency of occurrence of health events in a population within a specific period of time enables investigating associations between risk factors and the disease in question. The present study was based on the hypothesis that tobacco use is more frequent among women with mental disorders than in the general female population.

The prevalence of tobacco-based product use in women with mental and behavioral disorders in this study was high (24.9%) compared to the general female population, where it was 13.1%.[1] A study conducted to assess prevalence of use of different forms of tobacco and the demographic profile of female smokers in the state of Paraná found that among the 2,153 women, the prevalence of use in the total sample was 13.4% and 12.3% smoked daily.[14]

The sociodemographic profile of the women with mental and behavioral disorders was similar to the general population of female smokers in relation to age and years of study. However, the women

who used tobacco-based products investigated in the sample studied had lower income, worked less frequently outside the home and did not live with a partner. Another significant finding was that the mean age for starting to smoke was younger in the sample studied (14.3 years), whereas in the general population the mean was 17 years; the number of cigarettes smoked per day was higher (17.7), compared to 10.2 cigarettes in the general population; and a larger number of women lit up their first cigarette within five minutes of waking up (22%), as opposed to 18.9% in the general population.[14]

Studies conducted in Australia, United States and Israel showed that the frequency of smokers among individuals with mental disorders was approximately two times greater than among people with no history of psychiatric illness.[15,16] Studies on tobacco use among Brazilian psychiatric populations yielded different prevalences: 21.4%, 35.6% and 52.7%, depending on the universe and mental disorder being studied.[8,17,18]

High tobacco consumption affects the financial lives of people with mental disorders, since they allocate up to 30% of their monthly income on cigarettes; allocating more than 4% is already considered harmful. Difficulty in obtaining cigarettes leads some individuals with mental disorders to humiliating practices, such as stealing and smoking cigarette butts, which undermines their self-esteem and self-respect. [6]

In relation to mental and behavioral disorders among the female tobacco-based product users investigated in this study, it was noted that most had been diagnosed with a mood disorder (53.5%), followed by schizophrenia, schizotypal and delusional disorders, corresponding to 26.7% of the sample.

A comparative study among smokers and non-smokers in a Reference Center to Treat Smoking in the north region of Paraná identified that in the non-smoker group, 49.2% had a depressive mood disorder. The occurrence of depression and use of sedatives were significantly higher among smokers than nonsmokers.[19] Another study to identify the degree of nicotine dependence among schizophrenics and other people with mental disorders, hospitalized in a general hospital, found that, among the 270 people

with mental disorders, 35.6% were smokers, and, of the smokers, 33.3% were schizophrenics, similar to the findings in the present study.[18]

In relation to anxiety disorders, there was a discrepancy in relation to the data found in the literature. Whereas in the present sample, anxiety disorders corresponded to 6.7%, a study that sought to investigate the presence of anxiety disorders and smoking among patients receiving outpatient care identified a prevalence of 75% of smokers with anxiety disorders.[17]

As for the prevalence discrepancies found in the literature in relation to tobacco-based product use in psychiatric populations, three aspects need to be taken into account: there are few national studies on tobacco use by people with mental disorders and the factors associated with smoking; the care of people suffering from mental disorders differs, depending on the study universe; and, the profile of the present study was composed of women receiving treatment in a psychosocial care center. According to current public mental health policies, these centers provide care, within the sphere of the Unified Health System, for individuals with serious and persistent mental disorders.[20]

One aspect that reinforces the continuation of the culture of tobacco use in psychiatric care institutions is the belief that patients become more aggressive and mental disorders are exacerbated when tobacco is removed.[19] The approach for quitting smoking among patients with depressive disorders and/or who use psychoactive substances should be the same as the one recommended for the general population.[19,21] However, studies indicate that it is more difficult for women with mental disorders to stop using tobacco-based products.[9,10] In the present study, only 7.7% of the women interviewed were former smokers, compared to 14.4% in the general population.[14] Another interesting finding was the lower percentage of attempts to quit smoking in the last 12 months by the women interviewed (42.2%) compared to the general female population (49%).[14] This data seems to confirm that women with mental disorders have difficulties quitting the use of tobacco-related products.

A Brazilian study, conducted among people suffering from mental disorders and who were hospi-

talized in the psychiatric ward of a university hospital, revealed that 78% of smokers used tobacco as a form of self-medication against psychiatric symptoms; 79% said that smoking alleviated anxiety, 57.3% reported improvement in their moods, and 29.2% said it enhanced their concentration. Some patients recognized that relief from these symptoms was temporary, which led them to smoke a larger number of cigarettes.[6,18,22]

Even though care for the mentally ill has improved in the last few decades, little progress has been made in relation to smoking in this population. Therefore, it is necessary to consolidate care networks that are able to recognize and offer care to combat tobacco use by people with mental disorders.[18]

Although no statistical significance between the use of tobacco-based products, the sociodemographic variables, and mental and behavioral disorders was identified in this study, an association was identified between smoking and the presence of clinical comorbidities. However, it should be pointed out that the sample size of the present study may have had a bearing on the result of no statistical significance. In another study with a larger sample, which assessed the statistical relationships between the sociodemographic and clinical variables, an association was found between lower quality of life, clinical comorbidities, and smoking.[19]

These same authors found that work and domestic disabilities, other smokers in the household, hospitalizations, depressive disorders, use of sedatives, history of mental disorders in the family and worse quality of life were more common situations among smokers. Tobacco users also suffer from diabetes, arterial hypertension, heart disease, respiratory disease, and peptic ulcers more frequently than people who have never smoked.[19]

Smoking is one of the main risk factors for chronic noncommunicable diseases and the leading preventable global cause of morbidity and mortality – responsible for about six million deaths a year. This figure is projected to rise to 7.5 million in 2020, i.e., 10% of all deaths that will occur in the world.[23]

Epidemiological evidence indicates a causal relationship between smoking and around 50 diseases, particularly cardiovascular and respiratory diseases and cancer. The main causes of death among women are cardiovascular diseases, followed by neoplasms, and, in third place, respiratory diseases. These three causes can be related to smoking. It is estimated that smoking is responsible for approximately 10% of circulatory system diseases, 70% of lung cancers and 42% of chronic respiratory diseases.[2,23,24]

It is also estimated that people with serious and persistent mental disorders die, on average, 25 years younger than the general population, and smoking is one of the main causes for their decreased life expectancy.[25,26]

The present study found a high prevalence of tobacco-based product use among women with mental and behavioral disorders. There is sufficient knowledge and clear arguments for integrating the topic of smoking into conversations with patients and multidisciplinary teams, and to consider strategies to prevent tobacco use and help this population stop smoking.

Nursing professionals are essential in the work of multidisciplinary teams, since the continuous care they provide brings them into close proximity with patients. Nursing activities should be aimed at promoting health, with an emphasis on healthy lifestyle habits. Nurses must be mindful to encourage patients to be aware of the resources at their disposal for dealing with mental disorders and the use of tobacco-based products.[18]

The limitations of this study are related to the use of information provided during the telephone interviews. Since smoking can cause users to feel stigmatized, face-to-face data collection could encourage interviewees to speak more openly on the subject.

Conclusion

The prevalence of use of tobacco-based products among women with mental and behavioral disorders was high compared to the general female population. Although no statistical significance between the use of tobacco-based products and the sociodemographic variables and mental and behavioral

disorders was noted, an association between smoking and the presence of clinical comorbidities was identified in the sample studied. These findings may indicate that investment in therapies to stop using tobacco-based products should be implemented to protect and restore the health of this group of vulnerable people. Apart from the unnecessary suffering that lack of treatment can inflict upon this population, it is important to take into account the financial and human resources needed to prevent the worsening of diseases that could have been prevented by stopping tobacco consumption.

Acknowledgments

Collaborations

References

1. Instituto Nacional de Câncer (INCA). Organização Pan Americana da Saúde. Pesquisa especial de Tabagismo – PETab: relatório Brasil. Rio de Janeiro: INCA; 2011.

2. Malta DC, Iser BP, Sá NN, Yokota RT, Moura L, Claro RM. Tendências temporais no consumo de tabaco nas capitais brasileiras, segundo dados do VIGITEL, 2006 a 2011. Cad Saúde Pública. 2013;29(4):812-22.

3. Almeida L, Szklo A, Sampaio M, Souza M, Martins LF, Szklo M, et al. Global Adult Tobacco Survey data as a tool to monitor the WHO Framework Convention on Tobacco Control (WHO FCTC) implementation: the Brazilian case. Int J Environ Res Public Health. 2012;9(7):2520–36.

4. Borges MT, Simões-Barbosa RH. Cigarro "companheiro": o tabagismo feminino em uma abordagem crítica de gênero. Cad Saúde Pública. 2008; 24(12):2834-42.

5. Audrain-McGovern J, Rodriguez D, Kassel JD. Adolescent smoking and depression: evidence for self-medication and peer smoking mediation. Addiction. 2009;104(10):1743–56.

6. Oliveira RM, Santos JL, Furegato AR. Tobacco addiction in the psychiatric population and in the general population. Rev Lat Am Enfermagem. 2017;25(0):e2945.

7. Ernst M, Luckenbaugh DA, Moolchan ET, Leff MK, Allen R, Eshel N, et al. Behavioral predictors of substance-use initiation in adolescents with and without attention-deficit/hyperactivity disorder. Pediatrics. 2006;117(6):2030–9.

8. Barros FC, Melo AP, Cournos F, Cherchiglia ML, Peixoto ER, Guimarães MD. Cigarette smoking among psychiatric patients in Brazil. Cad Saude Publica. 2014;30(6):1195–206.

9. Lemos T. Tabagismo e comorbidades psiquiátricas. In: Gigliotti A, Presman S. Atualização no tratamento do tabagismo. Rio de Janeiro: Associação Brasileira de Psiquiatria; 2006. p. 53-70.

10. Groth SW, Morrison-Beedy D. Smoking, substance use, and mental health correlates in urban adolescent girls. J Community Health. 2011;36(4):552–8.

11. Aubin HJ, Rollema H, Svensson TH, Winterer G. Smoking, quitting, and psychiatric disease: a review. Neurosci Biobehav Rev. 2012;36(1):271–84.

12. Chen J, Bacanu SA, Yu H, Zhao Z, Jia P, Kendler KS, et al.; Cotinine meta-analysis group; FTND meta-analysis group. Genetic Relationship between Schizophrenia and Nicotine Dependence. Sci Rep. 2016;6(1):25671.

13. Menezes AM, Dumith SC, Martínez-Mesa J, Silva AE, Cascaes AM, Domínguez GG, et al . Problemas de saúde mental e tabagismo em adolescentes do sul do Brasil. Rev Saúde Pública. 2011;45(4):7005.

14. Scarinci IC, Bittencourt L, Person S, Cruz RC, Moysés ST. Prevalência do uso de produtos derivados do tabaco e fatores associados em mulheres no Paraná, Brasil. Cad Saúde Pública. 2012; 28(8):1450-8.
15. Lawrence D, Mitrou F, Zubrick SR. Smoking and mental illness: results from population surveys in Australia and the United States. BMC Public Health. 2009;9(1):285.

16. Kreinin A, Novitski D, Rabinowitz D, Weizman A, Grinshpoon A. Association between tobacco smoking and bipolar affective disorder: clinical, epidemiological, cross-sectional, retrospective study in outpatients. Compr Psychiatry. 2012;53(3):269–74.

17. Munaretti CL, Terra MB. Transtornos de ansiedade: um estudo de preval?ncia e comorbidade com tabagismo em um ambulat?rio de psiquiatria. J Bras Psiquiatr. 2007;56(2):108–15.

18. de Oliveira RM, Siqueira Júnior AC, Santos JL, Furegato AR. Nicotine dependence in the mental disorders, relationship with clinical indicators, and the meaning for the user. Rev Lat Am Enfermagem. 2014;22(4):685–92.

19. Castro MR, Matsuo T, Nunes SO. Características clínicas e qualidade de vida de fumantes em um centro de referência de abordagem e tratamento do tabagismo. J Bras Pneumol. 2010;36(1):67–74.

20. Brasil. Ministério da Saúde. Portaria 3088/2011. Institui a Rede de Atenção psicossocial para pessoas com sofrimento ou transtorno mental e com necessidades decorrentes do uso de crack, álcool e outras drogas, no âmbito do Sistema Único de Saúde. Brasília (DF): Ministério da Saúde; 2011.

21. Gelkopf M, Noam S, Rudinski D, Lerner A, Behrbalk P, Bleich A, et al. Nonmedication smoking reduction program for inpatients with chronic schizophrenia: a randomized control design study. J Nerv Ment Dis. 2012;200(2):142–6.

22. Oliveira RM, Siqueira Júnior AC, Furegato AR. The meaning of smoking for patients with mental disorder. Issues Ment Health Nurs. 2015;36(2):127–34.

23. Pinto MT, Pichon-Riviere A, Bardach A. The burden of smoking-related diseases in Brazil: mortality, morbidity and costs. Cad Saúde Pública. 2015;31(6):1283-97.

24. World Health Organization (WHO). Global health risks: mortality and burden of disease attributable to selected major risks. Geneva: WHO; 2009.

25. Colton CW, Manderscheid RW. Congruencies in increased mortality rates, years of potential life lost, and causes of death among public mental health clients in eight states. Prev Chronic Dis. 2006;3(2):A42.

26. Dickerson F, Origoni A, Schroeder J, Schweinfurth LA, Stallings C, Savage CL, et al. Mortality in schizophrenia and bipolar disorder: clinical and serological predictors. Schizophr Res. 2016;170(1):177–83.