Alcohol and crack/cocaine use in women: a 14-year cross-sectional study

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Abstract

Aim: *It was to describe the kind of the record, according to International Classification of Diseases (ICD) 10 criteria for psychoactive substance use (F10 - F19) in the first-time hospital admissions in women of the Bairral Institute (Instituto Bairral, Itapira, São Paulo, Brasil) between 1997 and 2010.*

Methods: *a cross-sectional study of a convenience sample of 4,736 patients of Brazilian public health system among which 761 were women.*

Results: *Overall, the rate of alcohol-related hospitalizations decreased from 93.6% in 1997 to 50.9% in 2010. In contrast, the rate of crack cocaine-related hospitalizations increased in women from 2.8% in 1997 to 67.8% in 2010. The linear regression was $R^2 = 0.8472$.*

Conclusion: *These data indicate a new trend in the pattern of psychoactive substance use in women.*

Keywords: *women, consumption, drugs, alcohol, cocaine, crack*

1. **Introduction**

In most cultures, women drink less than men. In Brazil, 53.4% of women over 35 years of age have used alcohol at least once, and 10% of these women match the criteria for dependence[1]. In addition, 4% of the Brazilian population has tried crack/cocaine. Half of the individuals surveyed in 2012 had tried these substances, and 48% are current users. According to the absolute number of users, Brazil ranks second worldwide[2]. When crack/cocaine is combined with alcohol, the user usually becomes dependent on both substances concomitantly[3]. Associated with these two substances generate cocaethylene[4;5;6], whose half-life is three times greater than that of cocaine used alone, thereby raising the risk of overdose[4] and increasing the chance of suffering a cerebral infarction, intracranial hemorrhage, myocardial infarction, cardiomyopathy and cardiac arrhythmias[5;7].

Data from the Brazilian Ministry of Health in 2004 showed a growing trend of lowering the age of sexual initiation, around 13 years, and this also coincided with the beginning of early alcohol consumption[8]. At the same time, a study of 150 women using crack showed that 80% were sexually active before age 15 and started using crack concomitantly. Finally, this study showed that consumption of alcohol and marijuana was necessarily associated with the crack[8]. Thus, all effects stemming from the use of these psychoactive substances in women result in consequences of greater magnitude and its consequences in all level are of incalculable proportions.

2. Objective

The central idea of this study is to analyze women admitted for the first time to hospital and matched the criteria for substance dependence according to the 10th edition of the International Classification of Diseases (ICD-10): F10 to F19 (Mental and Behavioral Disorders due to Use of Alcohol, Drugs and Other Psychoactive Substances) between the years 1997 and 2010.

3. Materials and Methods

This study was conducted at the Bairral Institute (Instituto Bairral), which is located in the municipality of Itapira in the state of São Paulo, Brazil. This reference hospital provides treatment services for drug addicts. A cross-sectional study was conducted to analyze the first-time hospital admissions of 4,736 inpatients in the Brazilian public health system (Sistema Único de Saúde, SUS) who had an ICD10 (F10-F19) diagnosis of Mental and Behavioral Disorders due to Psychoactive Substance Use between 1997 and 2010. The SUS is a public health system, which ensures full, universal, and free health care access for the entire Brazilian population. Although the data are from only one hospital, it is SUS which controls the admission of these patients. Therefore, the hospital is only responsible for the treatment and the Government which selects the patients.

A simple linear regression curve was fitted to the data according to the least squares method to assess the trends in alcohol and drug use over time. The dependent variables were the consumption of alcohol and other drugs, and the independent variable was the follow-up period. We calculated the coefficient of determination as the proportion of total variation in the

dependent variable (alcohol and drug use), which was explained by the variation in the independent variable (the follow-up period).

4. Results

Table 1 showed that 93.6% of the admissions in 1997 in the general population resulted from Mental and Behavioral Disorders due to Use of Alcohol, whereas 6.4% resulted from drug use. These rates decreased until 2010 when 50.9% of the admissions were due to Mental and Behavioral Disorders due to Use of Alcohol and 49.1% were due to Mental and Behavioral Disorders due to Multiple Drug Use and Use of Other Psychoactive Substance. Graphic 1 showed that there was a reverse trend in hospitalizations: drug use increased, whereas alcohol use decreased.

Specifically for each gender, male admissions, similar to the total population shape, can be seen in Table 1 that there was a decrease in total admissions for diagnosis F10 according to ICD-10 (Mental and Behavioral Disorders due to Use Alcohol) and an increase in admissions by diagnosis F14 according to ICD-10 (Mental and Behavioral Disorders due to Use of Cocaine/Crack).

In parallel, in relation to women, there was an increase in the number of admissions, so that in 1997 only 10.0% of total admissions were female, increase to 26.9% in 2010. Dividing by type of substance, in 1997, 97.2% of admissions were for mental disorders related to alcohol consumption and in 2010 that number dropped to 32.2% of the total, showing that there was an increase in the number of admissions for mental disorders related to use of other drugs.

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Regarding the number of hospitalizations for mental disorders related to alcohol consumption in women there was a trend of moderate decrease, with determination coefficient $R^2 = 0.1398$, and a considerable increase in the number of admissions for mental disorders related to use of other drugs with $R^2 = 0.8479$, as can be seen in Figure 1. In the case of hospitalizations related to the consumption of other drugs, 84.79% of the variation in admissions was explained by the variation of the period. So, there is a strong upward trend of admissions related to the consumption of other drugs over the period.

5. Discussion

5.1 – Increased psychoactive substance use in women

The increase in the hospitalization rates of women from 10.0% in 1997 to 26.9% in 2010 is an important finding of this study. The new social paradigm of Brazilian society brought women into the labor market, enabled many developments in women's rights, and recognized and legitimized women as working members of society. However, this progress has become a risk factor for substance abuse[9] as women assume roles in society that were previously reserved for men. Women are now exposed to the same stimuli as men.

Another significant finding of this study was the increased drug use in women. Most of the diagnoses in these women were ICD10 (F10-F19). Therefore, the increased drug use does not indicate that alcohol was replaced with drugs but that drugs were added to the alcohol consumption pattern. The media directs their alcohol advertisements to female audience members. In Brazil, most of these advertisements are broadcast on television during the morning and afternoon[10]. The combination of alcohol and drug use, especially alcohol and crack/cocaine, increases the probability of risky sexual behavior and, consequently, exposure to sexually transmitted diseases[11;12;13]. In addition, it use of self-prostitution to obtain drugs increase[14].

The risk of death is 40% higher in men than in women[15]; however, the risk of physical damage caused by psychoactive substances is three times higher in women[16] and the combination of alcohol and crack/cocaine increases the risk of death[17] due to poisoning, homicide, pathological changes, accidents, drowning, suicide, hypothermia, and traffic accidents[18].

(Table1. A gender comparison according to first-time hospitalizations for alcohol and drug use between 1997 and 2010 insert here)

5.2 – Trends for the upcoming years

(insert here figure 1)

Overall, alcohol consumption in women was stable and the use of multiple drugs increase (Figure 1) and there was an inversion of first admission diagnosis of alcohol (ICD - F10) for cocaine/crack drug (ICD - F14) and the balance in 2006. This data indicates a growing trend toward the use of multiple drugs in women for next years. Consequently, government officials need to be prepared for this new social phenomenon resulting from the consumption of cocaine/crack. This can be associated to the fact that Brazil is the largest consumer of crack today[2]. Specifically by gender, with regard to males, Table 1 indicates the same trend as the general population sample. However, only in females, there are points to stability in alcohol consumption and increasing trend towards the use of multiple drugs. Thus, there is a change in the consumption of psychoactive substances profile that is being a new outlook for the coming years. In this sense, it is concluded that there was no simple substitution of alcohol with other drugs. In fact, alcohol consumption, added the multiple substances. Therefore, the challenge for the government is to develop a program that can develop coping strategies of this new reality, whose importance is underscored by the aforementioned correlation between the consumption of

alcohol, cocaine/crack, effects of cocaethylene, unplanned pregnancies and sexually transmitted/AIDS.

The rate of hospitalizations due to multiple drug use increased from 6.4% in 1997 to 49.1% in 2010 (Table 1). These data corroborate the findings[19] in the state of Iowa (USA), which indicates a new pattern of psychoactive substance use. This is a new psychosocial phenomenon based on economic realities. There are increased demands on women, including pressure to perform well at work and the strain of performing household chores after work. Psychoactive substances are viewed as an alternative to offset the stress that is associated with a woman's professional life, home life, and existential issues. In addition, there is an increased supply of tobacco, alcohol, and drugs by tobacco producers, the alcohol industry, and drug traffickers. These three factors lead to the increased dissemination of psychoactive substances that the general population uses as a pseudo treatment for their existential issues. These three together generate greater spread of psychoactive substances and the population in general one finds these substances pseudo treatment to their existential questions. This indicates the need for a public health policy can prevent this type of demand and utilizing resources to reduce supply. For example, the search of Duailibi[20] showed that, after the implementation of the restriction of alcohol sales in the Brazilian city of Diadema after 11 pm, there was a reduction in political homicide rate in women nearly nine times for every 1,000 residents, demonstrating the effectiveness this type of policy.

6. Conclusions

The data reveal a growing trend of change in the consumption of alcohol to cocaine/crack in women. It also demonstrates a new standard of psychoactive substance use, suggesting thinking

about consequences such as increased prostitution in this group, greater spread of sexually transmitted diseases and the increase in crime for involvement in trafficking of illicit drugs. Future studies may determine the occurrence of this fact. Especially, this paper indicates the need for a public health policy directed to the data obtained. The results also point to research from other areas of knowledge, particularly anthropology, sociology and social psychology to provide greater analytical qualitative allowance about the fact.

It is important to remember, however, that the present sample used as inpatients in a psychiatric hospital in the state of São Paulo, Brazil through SUS, so that, although representative of important segment of society, particularly the underprivileged data cannot be generalized to the entire Brazilian population.

7. Acknowledgments

8. Conflicts of interest

All the authors declare no conflicts of interest.

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Table1. A gender comparison according to first-time hospitalizations for alcohol and drug use between 1997 and 2010

| | MALE | | | | FEMALE | | | | GENERAL | | | |
| | Alcohol | | Other Drugs | | Alcohol | | Other Drugs | | Alcohol | | Other Drugs | |
	N	%	N	%	N	%	N	%	N	%	N	%
1997	301	93.2	22	6.8	35	97.2	1	2.8	336	93.6	23	6.4
1998	444	96.7	15	3.3	39	86.7	6	13.3	483	95.8	21	4.2
1999	310	87.8	43	12.2	42	72.4	16	27.6	352	85.6	59	14.4
2000	278	87.1	41	12.9	40	81.6	9	18.4	318	86.4	50	13.6
2001	299	83.5	59	16.5	33	70.2	14	29.8	332	82.0	73	18.0
2002	270	86.0	44	14.0	47	71.2	19	28.8	317	83.4	63	16.6
2003	279	85.1	49	14.9	61	76.3	19	23.8	340	83.3	68	16.7
2004	210	79.5	54	20.5	33	68.8	15	31.3	243	77.9	69	22.1
2005	105	80.8	25	19.2	26	74.3	9	25.7	131	79.4	34	20.6
2006	182	82.4	39	17.6	28	66.7	14	33.3	210	79.8	53	20.2
2007	177	74.7	60	25.3	15	35.7	27	64.3	192	68.8	87	31.2
2008	159	69.1	71	30.9	22	34.9	41	65.1	181	61.8	112	38.2
2009	113	55.9	89	44.1	17	27.0	46	73.0	130	49.1	135	50.9
2010	137	57.8	100	42.2	28	32.2	59	67.8	165	50.9	159	49.1
Total	3264	82.1	711	17.9	466	61.2	295	38.8	3730	78.8	1006	21.2

5.2 – Trends for the upcoming years
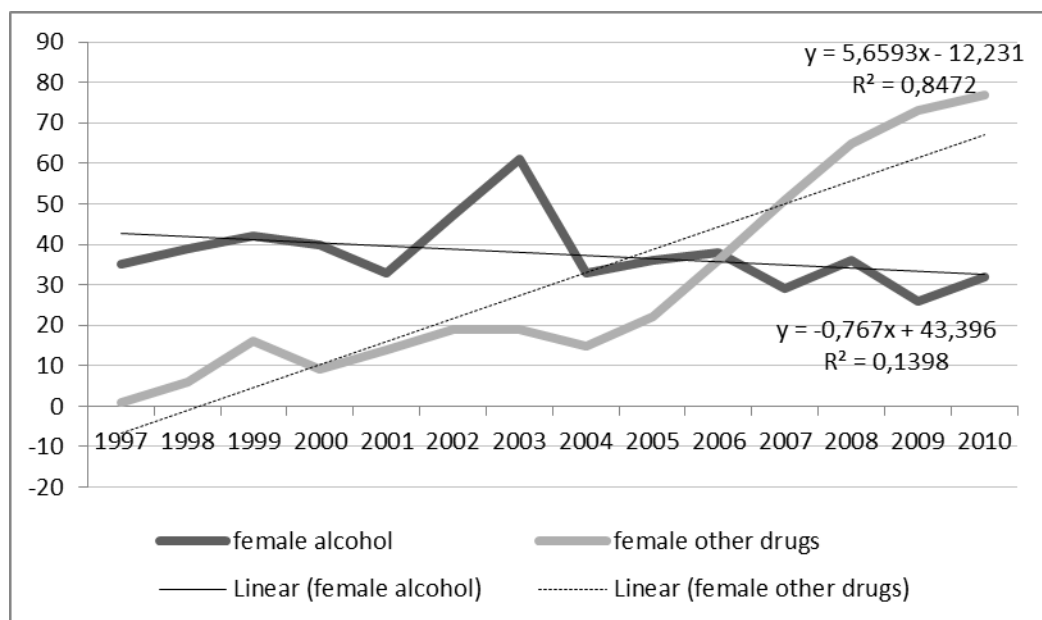
Figure 1.Trends in psychoactive substance use among women from 1997-2010