

A case-control study on alcohol and psychiatric disorders as risk factors for drug abuse pattern

Estudo caso-controle sobre distúrbios psiquiátricos e com álcool como fatores de risco para padrão de abuso de drogas

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Abstract We evaluated alcohol and psychiatric disorders as risk factors for the pattern of drug abuse/dependence in a matched case-control study (370 adults). Cases (drug abusers) and controls were selected in the community using the snowball technique and matched by sex, age, and friendship. Information was gathered using the “Composite International Diagnostic Interview” (CIDI). Three patterns of drug abuse/dependence were evaluated: any drug abuse/dependence, only cannabis, and cocaine and other drugs. Logistic conditional regression showed that alcohol dependence was strongly associated with pattern of drug abuse/dependence. Thus, compared to the “no drug abuse group”, the odds ratio for association with diagnosis of abuse/dependence on cocaine and other drugs was 10.2 (95% CI: 4.9-21.2), whereas for abuse/dependence on cannabis only, the odds ratio was 1.0. For affective disorders, the odds ratio was 2.0 (95% CI: 1.10-3.64) for the group that received a diagnosis of abuse/dependence on cocaine and other drugs, whereas no association was found for those with abuse/dependence on cannabis only. In conclusion, there is not a homogeneous group of “drug users”, and the role of risk factors depends on the drug use pattern. **Key words** Case-Control Studies; Mental Disorders; Substance-Related Disorders; Matched-Pair Analysis

Resumo Avaliou-se os transtornos mentais e a dependência de álcool como fatores de risco para padrão de abuso de drogas em um estudo caso-controle (370 adultos). Casos (usuários de drogas) e controles foram selecionados na comunidade segundo a técnica de “bola de neve” e pareados por sexo, idade e amizade. A coleta de dados foi feita por meio do CIDI (Composite International Diagnostic Interview). Considerou-se três padrões de abuso/dependência de drogas de acordo com o tipo utilizado: abuso/dependência de qualquer droga, apenas maconha e cocaína, e outras drogas. Na regressão logística condicional, dependência ao álcool, associou-se fortemente ao padrão de abuso/dependência de drogas. Comparado ao grupo de “não usuários de drogas”, o odds ratio (OR) associado ao abuso/dependência de cocaína/outras drogas era de 10,2 (IC95%: 4,9-21,2), enquanto que para abuso/dependência de maconha, o OR era de 1,0. Para distúrbios afetivos o OR associado à cocaína/outras drogas foi de 2,0 (IC95%: 1,10-3,64), enquanto que para aqueles com consumo apenas de maconha não foi encontrada associação. Concluindo, não há um grupo homogêneo de “usuários de drogas” e o papel dos fatores de risco depende do padrão de consumo.

Palavras-chave Estudos de Casos-Controles; Transtornos Mentais; Transtornos Relacionados ao Uso de Substâncias Psicoativas; Análise por Pareamento

Introduction

The relationship between psychopathology and drug abuse has long been established (Christie et al., 1988; Deykin et al., 1987; Hasin & Grant, 1987; Kessler, 1995; Rounsaville & Carroll, 1991). However, the type of drug abused has appeared as the most important pattern implicated in differences in prevalence of psychopathology reported by different studies (Boyle & Offord, 1991; McAree et al., 1972; Regier et al., 1990). According to McAree et al. (1972), multiple-drug users evidenced more psychopathology than cannabis-only users or non-users. Regier et al. (1990) performed a study in which a community and institutional sample of 20,291 subjects was assessed by the DIS (Diagnostic Interview Schedule). The authors reported higher rates of anxiety and affective, antisocial, and schizophrenic disorders among those who used drugs other than alcohol and cannabis. In a community sample of 1,302 adolescents aged 12 to 16, Boyle & Offord (1991) found a statistically significant relationship between emotional disorder and use of "hard drugs" but not between emotional disorder and marijuana use. A recent cross-national investigation of comorbidity between substance abuse and psychiatric disorders conducted in the United States suggests a continuum in the magnitude of comorbidity as a function of the spectrum of substance use pattern (use, problems, dependence), as well as a direct relationship between the number of comorbid psychiatric disorders and increasing severity of substance use disorders (Merinkangas et al., 1998). Helzer & Pryzbeck (1988) reported that among cannabis-only drug abusers the lifetime prevalence rate of alcoholism was about one-third (36%), while among abusers of hard drugs the alcoholism rate was much higher, ranging from 62% in abusers of stimulants to 84% in cocaine abusers. Other studies of inpatient and outpatient populations have corroborated these findings, showing that about 80% of cocaine addicts, 50% to 75% of opiate addicts, and 50% of cannabis addicts are also alcoholics (Bunt et al., 1990; Khalsa & Paredes, 1992; Miller & Gold, 1990; Miller & Mirin, 1989; Miller & Ries, 1991). Despite the importance of these studies for the overall understanding of comorbidity between psychiatric and drug disorders, they have one important limitation, that is, they do not provide information on the temporal sequence of the events under investigation, making the difference between causal and prognostic factors impossible.

The purpose of this study is to evaluate the role of alcohol dependence and psychiatric

disorders as risk factors for pattern of drug abuse, according to type of drug used (any drug abuse/dependence, only cannabis, and cocaine and other drugs), using a matched case-control design.

Methods

A full description of the study design is reported elsewhere (Lopes et al., 1996a). In short, a matched case-control study was conducted in 370 adults (185 cases and 185 controls) aged 18 to 41 years and residing in Rio de Janeiro, Brazil. Trained interviewers administered the Composite International Diagnostic Interview (CIDI) (Robins et al., 1988) to obtain information on demographic factors, history of psychiatric and alcohol-related disorders, and drug abuse/dependence. The CIDI distinguishes between a diagnosis of drug abuse/dependence, alcohol abuse/dependence, and nicotine dependence. The test-retest reliability of the DSM-III-R diagnoses generated by the CIDI was specifically evaluated in this study, and the results indicated good to high levels of agreement for all psychiatric and drug abuse/dependence diagnoses (Lopes, 1994a). Age at onset of psychiatric and drug disorders was also reported with great reliability, with intra-class correlation coefficients very close to unity both for psychiatric and drug disorders (Lopes, 1994b).

Cases and controls were identified using the snowball technique, based on referrals made among people who knew others with relevant characteristics for the research (Biernacki & Waldford, 1981), matching cases and controls by friendship. Cases were defined for the study as drug abusers located in the community. After the interview, each case was asked to indicate a friend who was also a drug abuser and another friend who had never been involved in drug abuse (the control).

In order to avoid loss of information due to the informant's mental status, poor recall concerning age of disease onset, and selection bias, exclusion criteria included: (1) evidence of severe cognitive impairment for language or communication, (2) age under 18 or over 40 years at the time of the interview, and (3) history of recent psychiatric or drug-related treatment (within the last month).

The psychiatric categories evaluated were: affective disorders (major depression, mania, bipolar disorder, and dysthymia), phobias (agoraphobia, social phobia, and simple phobia), and alcohol dependence. The categories of type of drug abuse/dependence evaluated in this

report were: any drug abuse/dependence, only cannabis, and cocaine and other drugs (tranquilizers, stimulants, hallucinogens, and opiates). Age at onset of psychiatric disorder was determined by the subject's age during the first episode meeting DSM-III-R criteria for that disorder.

Data analysis

Since the main hypothesis to be tested was whether psychiatric and alcohol disorders are risk factors for pattern of drug disorder, matching allowed to define the time period for assessing these disorders. Thus, an "exposure window" was created by defining "exposed" cases as those drug abusers whose psychiatric or alcohol disorders occurred before the beginning of a drug disorder; and "exposed" controls as those non-drug abusers whose psychiatric disorder occurred before the onset of a drug disorder in the matched case. The "unexposed" group consisted of subjects who lacked a psychiatric or alcohol diagnosis or whose psychiatric or alcohol diagnosis occurred within the same year or after the drug abuse or dependence diagnosis. This procedure, made possible only because cases and controls were individually matched, gave cases and controls an equal chance of being "exposed" to psychiatric disorders.

The analysis considered three different outcomes: any drug abuse/dependence (all 185 cases); only cannabis abuse/dependence (55 subjects); and cocaine abuse/dependence and other types of drug abuse/dependence (130 subjects).

In this study, age and sex were matched in the design, and the use of snowball sampling matched cases and controls for friendship and also for sociodemographic variables. Thus, a conditional analysis based on the discordant pairs was performed.

Results

The study population was predominantly male (74%), young (mean age 25.5 years), single (70% of cases and 76% of controls), and with more than 9 years of schooling (69% of cases and 75% of controls). At the time of the interview, 82% of cases and 85% of controls were either working or studying.

The most common diagnoses among cases were cannabis abuse (45.4%) and cocaine abuse (46.5%). Cannabis dependence was diagnosed in 16.2%, sedative abuse in 10.3%, cocaine dependence in 9.7%, and all other types of drug abuse or dependence in less than 5% of cases. Except for inhalants and psychedelics, the diagnoses of abuse were more frequent than for dependence. However, when drug abuse/dependence is categorized in two groups, subjects with a diagnosis of cannabis abuse/dependence only constituted 29.7% of cases (N = 55) and those with a diagnosis of abuse/dependence for cocaine/other drugs constituted 70.2% (N = 130).

As shown in Table 1, when all 185 drug abusers were evaluated together, 31% had a history of alcohol dependence compared to 11% of controls, 39% had a diagnosis of phobia versus 35% of controls, and 16% had a diagnosis of an affective disorder compared to 12% of controls. Subjects with a diagnosis of cocaine or other-drug abuse or dependence (N = 130) were more likely to show lifetime alcohol dependence than those with cannabis-only abuse or dependence (N = 55). For affective disorders, differences between cases and controls were less striking for all three patterns of drug abuse/dependence.

The matched conditional analysis confirmed this trend, with a ten-fold odds ratio for alcohol dependence and cocaine or other-drug abuse/dependence (OR = 10.2; 95% CI: 4.9-

Table 1

Distribution* among cases and controls of history of psychiatric disorders for different patterns of drug abuse/dependence.

	Any drug abuse		Cannabis		Cocaine	
	Cases (%)	Controls (%)	Cases (%)	Controls (%)	Cases (%)	Controls (%)
Alcohol dependence	30.8	10.8	20.0	20.0	35.4	6.9
Any affective disorder	16.2	11.9	18.2	18.2	15.4	9.2
Phobias	38.9	35.1	30.9	25.4	42.3	39.2

* Based on unmatched percentage distributions.

21.2) as compared to cannabis-only abuse or dependence (OR = 1.0). For affective disorders, the odds ratios were not significant for either cocaine or other-drug abuse/dependence or cannabis-only abuse/dependence (Table 2).

Discussion

According to this study, abuse of (or dependence on) cocaine or other hard drugs, but not cannabis-only abuse/dependence, was strongly associated with alcohol dependence and significantly associated with a history of affective disorders. These findings are consistent with other studies, according to which abusers of "hard" drugs present higher rates of alcoholism and psychiatric disorders than abusers of cannabis only (Helzer & Prysbeck, 1988; Miller & Mirin, 1989; Miller & Ries, 1991). Despite the paucity of research on specific treatment interventions for patients with drug abuse/dependence who have additional psychiatric or alcohol disorders, some studies report that drug abusers with alcohol disorders have the worst prognosis (Helzer & Prysbeck, 1988; Miller & Mirin, 1989). Moreover, treatment may be com-

plicated in alcoholic drug abusers, since they are poor candidates for currently available pharmacotherapies due to the potentially harmful interaction between medication, alcohol, and other drugs. Data from this study show that abusers of hard drugs present higher rates of comorbid psychiatric and alcohol disorders, in agreement with other studies showing an important association between psychiatric, alcohol, and drug disorders (Grant & Harford, 1995; Penick et al., 1994) and highlighting the need to make these specific high-risk groups the focus of more intensive initial intervention.

Selection bias as a consequence of friendship matching was unlikely to have occurred, as published elsewhere (Lopes et al., 1996b). Selection bias can result from friendship matching if subject selection is not independent of the exposure under study within each stratum of the matching factors (Flanders & Austin, 1986). If prevalence of exposure among friends of exposed cases (p_1) is equal to prevalence of exposure among friends of unexposed cases (p_2), then bias resulting from use of friend controls does not occur. The observed distribution of the 185 matched pairs with or without at least one psychiatric disorder showed that the proportion of exposed controls selected by exposed cases ($p_1 = 0.52$) was very close to the proportion of exposed controls selected by unexposed cases ($p_2 = 0.51$), indicating no selection bias in this study.

The use of "lay" interviewers minimized the possibility of clinical judgment, as did their lack of knowledge of the hypothesis being tested. According to Lewis & Williams (1989), biased assessments occur when clinical judgment is required of the interviewer. In addition, drug and psychiatric diagnoses were evaluated by the same standardized instrument.

Our findings indicate that there is not a homogeneous group of "drug users", but different groups with different patterns of drug use that do not share the same risk factors. According to our data, hard drug abusers showed an odds ratios of 10.2 for alcohol dependence and an OR of 2.0 for affective disorders, values much higher than those found for the any-drug abuse group (OR = 3.63 and 1.53, respectively).

Acknowledgments

Claudia S. Lopes was partially supported by Rio de Janeiro State Research Foundation (FAPERJ) grant E26/150.889/99 and National Research Council (CNPq) grant 300228/99-6.

Table 2

Distribution of number of pairs of cases (any drug abuse, only cannabis, cocaine and other drugs) and controls (no drug abuse) by exposure to alcohol dependence and psychiatric disorders. Odds ratios (OR) and 95% confidence intervals (95% CI) – matched conditional analysis.

Pair exposure	Pattern of drug abuse		
	Any drug abuse	Only cannabis	Cocaine and other drugs
Alcohol dependence			
-1	14	10	4
0	120	35	85
1	51	10	41
OR (95% CI)	3.64 (2.40-5.55)	1.00	10.2 (4.90-21.2)
Affective disorders			
-1	15	7	8
0	147	41	106
1	23	7	16
OR (95% CI)	1.53 (0.97-2.43)	1.00	2.00 (1.10-3.64)
Phobias			
-1	37	10	27
0	104	32	72
1	44	13	31
OR (95% CI)	1.19 (0.88-1.62)	1.30 (0.73-2.40)	1.15 (0.80-1.65)

Where: (-1) case was negative and control was positive; (0) case and control were both positive or both negative; and (1) case was positive and control was negative.

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Submitted on 29 March 2001

Final version resubmitted on 10 December 2001

Approved on 6 March 2002