Francisco I Bastos

Cynthia B Cunha

Neilane Bertoni

Grupo de Estudos em População, Sexualidade e Aids*

Use of psychoactive substances and contraceptive methods by the Brazilian urban population, 2005

ABSTRACT

OBJECTIVE: To analyze the relationship between utilization patterns for condoms and other contraceptive methods and the consumption of alcohol and drugs.

METHODS: Exploratory study based on data from a probabilistic sample of 5,040 interviewees aged 16 to 65 years living in large urban regions of Brazil in 2005. The data were collected by means of questionnaires. The chi-square automatic interaction classification tree technique was used to study the use of condoms among interviewees of both sexes and other contraceptive methods among women, at the time of the last vaginal sexual intercourse.

RESULTS: Among young and middle-aged adults of both sexes and young men in stable relationships, condom use was less frequent among those who said they used psychoactive substances (alcohol and/or illegal drugs). The possible modulating effect of psychoactive substances on contraceptive practices among mature women seems to be more straightforward, compared to the more subtle effects observed among younger women, for whom the different social classes they belonged to seemed to play a more important role.

CONCLUSIONS: Despite the limitations resulting from an exploratory study, the fact that this was a representative sample of the urban population of Brazil and not from vulnerable populations, reinforces the need to implement integrated public policies directed towards the general population, with regard to preventing drug consumption, alcohol abuse, sexually transmitted infections, HIV/AIDS and unwanted pregnancy and promoting sexual and reproductive health.

DESCRIPTORS: Contraception, utilization. Condoms, utilization. Alcohol Drinking. Street Drugs. Population Studies in Public Health. Brazil. Cross-sectional Studies.

Laboratório de Informações em Saúde. Instituto de Comunicação e Informação Científica e Tecnológica em Saúde. Fundação Oswaldo Cruz. Rio de Janeiro, RJ, Brasil

* (Study Group on Population, Sexuality and AIDS) members: Elza Berquó, Francisco Inácio Pinkusfeld Bastos, Ivan França Junior, Regina Barbosa, Sandra Garcia, Vera Paiva, Wilton Bussab.

Correspondence:
Francisco I. Bastos
Laboratório de Informações em Saúde
Instituto de Comunicação e Informação
Científica e Tecnológica em Saúde
Fundação Oswaldo Cruz
Av. Brasil, 4.365 - Pavilhão Haity Moussatché
21040-900 Rio de Janeiro, RJ, Brasil
E-mail: bastos@cict.fi ocruz.br

INTRODUCTION

Abusive consumptions of alcohol and illegal drugs constitutes one of the main public health problems in present-day society.[11] Historical and cultural factors have led to legal commercialization and consumption of alcohol, and its integration within the repertoire of socially legitimate habits in Western society, contrary to the situation in Islamic countries or in the United States at the time of the Prohibition law (1920-1933). On the other hand, substances like cocaine, marihuana and other cannabinoid drugs (e.g. hashish) are considered to be "drugs", and are substances that are illegally sold and consumed, proscribed by national legislation and by international conventions,[20] to which Brazil is a

signatory. In terms of the impact on public health and the damage and risks associated with alcohol and drug consumption, it is more realistic and advantageous to think of abuse of these substances in an integrated manner, as psychoactive substances, i.e. as substances that act on the psyche and on behavior. The discussion on the different types of damage that are potentially associated with alcohol and drug abuse goes beyond the scope of the present article, which solely analyzes the possible modulating effect of alcohol and different illegal drugs on specific aspects of sexual and reproductive health.

Unprotected sexual activity, i.e. not including the use of condoms (male or female), has consistently been shown to be associated with greater risk of acquiring sexually transmissible diseases, among which HIV infection.[8] Consistent use of condoms, just like other contraceptive methods, also constitutes a fundamental alternative for preventing unwanted pregnancy.

The specialized literature has documented an association between the consumption of alcohol[6,9,12] and drugs such as cocaine/crack[15] and methamphetamines[5] and the inconsistent use of condoms.

The objective of the present article was to analyze the relationship between patterns of using condoms and other contraceptive methods and the consumption of alcohol and drugs in the urban population of Brazil.

METHODS

The present study was of exploratory nature and used data from the 2005 version of the survey "Sexual behavior and perceptions of the Brazilian population regarding HIV/AIDS", which was coordinated by the Brazilian Center for Analysis and Planning (*Centro Brasileiro de Análise e Planejamento*, CEBRAP) and the Ministry of Health.[a] The 2005 survey systematized data from a multistage probabilistic sample consisting of 5,040 interviewees living in large urban regions of Brazil.

The samples obtained were representative of the urban population of Brazil, in accordance with microregions defined by the Brazilian Institute for Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*, IBGE). The sampling plan was stratified into four stages that reduced to three in the strata that contained the state capitals. It consisted of successively drawing census tracts, private households and individuals aged 16 to 65 years, in each microregion. The data analyzed corresponded to post-strata that were defined from weightings that corrected for the likelihood of including households in the sample, as detailed by Bussab.[4]

The possible interrelations between regular consumption of alcohol and protected sexual activity and/or the use of other contraceptive methods were explored.

Adopting the concept that sexual behavior is modulated through the use of psychoactive substances (whether these are legal or illegal), it was decided to work with a summary variable defined from the responses to the following questions, which formed part of the survey questionnaire on which the present article was based:[a] "Have you, at any time of life, started to drink regularly (more than four times a week)" and "Over the last 12 months, have you used any type of drug (excluding alcohol and cigarettes)? If so, what?".

Two strata were defined. The first was composed of interviewees who said that they had drunk regularly at some time during their lives and/or had used drugs over the last 12 months. The second was composed of interviewees who said that they had not used illegal drugs over the last 12 months and had not regularly made use of alcoholic drinks at any time of their lives.

The classification tree technique known as the *Chi-square Automatic Interaction Detector* (CHAID) was used as an alternative to logistic regression or similar multivariate analysis techniques because of the impossibility of establishing time relationships between the different variables (defined according to different time frames). It was also used because of the complexity of the interrelations between regular use of alcohol and/or consumption of drugs and the adoption of safer sexual practices and contraceptive practices other than the use of contraceptives (as discussed later on).

The outcomes analyzed were the use/nonuse of condoms (male or female) and the use/nonuse of contraceptive methods other than condoms, at the time of the last vaginal sexual intercourse (either with regular or with casual partners).

With regard to analysis of the use of other contraceptive methods (methods other than condoms), the study population consisted only of the female respondents, because of the limited number of male contraceptive alternatives, basically comprising condoms and vasectomy. The latter is relatively rare among the general population in Brazil.

Using the CHAID technique, the sample was partitioned into homogenous groups/subgroups until the stratum size had been reduced to a previously specified number of respondents, or until there were no further variables with a statistically significant association with the outcome.

The minimum size for each subgroup was 50 observations, for each of the models (one model for each of the two different outcomes considered). A cross-validation

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procedure with a factor of ten was also performed, with the aim of obtaining more accurate results.[3] Observations with unknown values were excluded from the analysis.

The variables used were: age group (16 to 24 years; 25 to 44 years; 45 to 65 years); nature of interviewee's relationship with his/her partner (stable/casual); educational level (no schooling; elementary education; high school education; university-level education; postgraduate-level education); social class (classes A, B and C; classes D and E); and interviewee's self-assessment regarding his/her risk of getting Aids (high; medium/low/none). Using the CHAID technique on the female population alone, age groups within the fertile age range were categorized (16 to 24; 25 to 34; 35 to 49).

The variable "nature of relationship with partner" was defined as "stable" for interviewees who reported having a relationship consisting of boyfriend/girlfriend, engagement, marriage or "lovers" that represented involvement or commitment, and "casual" for interviewees who did not establish any link or commitment towards continuity in their affective-sexual relationship.

Because of the complex structure of the data under analysis, pertinent weightings were incorporated into the complex samples for proper estimation of the variances. However, for the CHAID procedure, there is no implemented routine for complex samples in the SPSS for Windows statistical package (SPSS Inc., Chicago, United States), even in its most recent versions. At present, the modules available for analyzing complex data have a limited repertoire of statistical procedures. On the other hand, packages that present great flexibility regarding data handling in complex samples, such as the most recent versions of Stata (Stata Corporation, USA), which have been used in other analyses on the same database (see the other articles in the present supplement), do not include the CHAID option among their procedures.

The project of the survey "*Comportamento Sexual e Percepções da População Brasileira Sobre HIV/Aids*" was approved by the Ethics Committee of Faculdade de Saúde Pública of Universidade de São Paulo.

RESULTS

Through applying the CHAID technique to "use of condom" (male or female) during the last vaginal sexual intercourse, a tree with four levels and 13 nodes was obtained (Figure 1), relating to the population that reported having had sexual intercourse over the preceding 12 months (N = 2,591).

The variable of greatest relevance in discriminating between use and nonuse of a condom was whether this last sexual intercourse was with a stable or with a casual partner. Taking this variable alone, 78.9% (224/284) of the individuals whose last occasion of sexual intercourse was with a casual partner said that they used a condom, versus 26.7% (617/2307) of those who said they had intercourse with a stable partner.

Among the individuals whose last sexual intercourse was with a stable partner, a difference regarding use/nonuse of a condom was observed in relation to age. The youngest age group (16 to 24 years) reported the most frequent use of condoms (85.0%; 136/160). Among the individuals in stable relationships, their use of condoms decreased with advancing age, i.e. a greater proportion of younger individuals used condoms within the context of stable relationships (Table 1).

Regular use of alcohol or illegal drugs seemed to modulate the use of condoms among the individuals in stable relationships, both for individuals of both sexes aged 25 to 44 years and for men aged 16 to 24 years.

Comparing the eight strata obtained from the first CHAID model (Table 1), the stratum relating to individuals aged 16 to 24 years who reported that their last occasion of vaginal sexual intercourse was with a casual partner was the one that reported the most frequent use of condoms: 85.0% (136/160). On the other hand, the stratum in which the use of condoms was least frequently reported was the one consisting of individuals aged 45 to 65 years who reported that their last occasion of sexual intercourse was with a stable partner. Applying the CHAID technique for discriminating analysis relating to the use of other contraceptive methods on the last occasion of sexual intercourse among women who said they had had intercourse over the last 12 months, data relating to 986 women were analyzed. This generated a tree with three levels and eight nodes (Figure 2). The age of the interviewees was the most important variable for discriminating between patterns of use among contraceptive methods other than male of female condoms. Younger women (16 to 34 years) reported making more frequent use of at least one of these methods (59.8%, 360/602), in comparison with women aged 35 to 49 years (41.7%, 160/384).

In the second hierarchical level of the model (Figure 2), for both the node of women aged 16 to 34 years and the node of women aged 35 to 49 years, the effect of the variable relating to regular use of alcohol or illegal drugs was observed. Among the women who said they used these substances, 25.7% (9/35) of the ones aged 35 to 49 years used contraceptive methods other than condoms, whereas 48.8% (39/80) of the ones aged 16 to 34 years did so.

Social class was also shown to be a discriminating factor regarding the use of other contraceptive methods by younger women (16 to 34 years) who reported not

Table 1. Population strata according to use of male or female condom at the last vaginal sexual intercourse. Brazil, 2005. (N = 2591)

Population stratum	% use in stratum	% nonuse in stratum	% of population in stratum
Individuals aged 45 to 65 years whose last sexual intercourse was with a stable partner** (n = 588)	13.4	86.6	22.7
Individuals aged 25 to 44 years who made use of drugs* and whose last sexual intercourse was with a stable partner** (n = 216)	17.1	82.9	8.3
Individuals aged 25 to 44 years who did not make use of drugs* and whose last sexual intercourse was with a stable partner** (n = 1010)	25.1	74.9	39.9
Women aged 16 to 24 years whose last sexual intercourse was with a stable partner** (n = 246)	42.3	57.7	9.5
Men aged 16 to 24 years who made use of drugs* and whose last sexual intercourse was with a stable partner** (n = 79)	45.6	54.4	3.0
Men aged 16 to 24 years who did not make use of drugs* and whose last sexual intercourse was with a stable partner** (n = 168)	63.7	36.3	6.5
Individuals aged 25 to 65 years whose last sexual intercourse was with a casual partner*** (n = 124)	71.0	29.0	4.8
Individuals aged 16 to 24 years whose last sexual intercourse was with a casual partner*** (n = 160)	85.0	15.0	6.2

* Relating to regular use of alcohol (four or more times a week) or use of illegal drugs
** Stable partners were defined as those with whom there was a relationship consisting of boyfriend/girlfriend, engagement, marriage or "lovers" that implied involvement or commitment
*** Casual partners were defined as those with whom no link or commitment towards continuation of the relationship was established

making regular use of alcohol or illegal drugs. Among the women in this stratum of higher social level (population classes A, B and C), it was observed that contraceptive methods other than condoms were used more frequently than among the women in classes D and E, with proportions of 64.7% (224/346) and 55.1% (97/176), respectively.

Table 2 compares the strata obtained according to the CHAID technique and indicates that the stratum that presented the smallest proportion of use of contraceptive methods was that of the women aged 35 to 49 years who reported regularly using alcohol and illegal drugs. The findings also indicate that the women in classes A, B and C aged 16 to 34 years who reported not making regular use of alcohol and illegal drugs were the ones who most frequently used other contraceptive procedures.

DISCUSSION

In the strata of young and middle-aged adults of both sexes and in the stratum of young men in stable relationships, the use of condoms was less frequent among those who said they used psychoactive substances. These findings may contribute towards formulating public policies relating to alcohol and drug consumption, and towards preventing sexually transmissible infections (STIs) and HIV/AIDS, since they suggest that psychoactive substances may have a modulating effect on the sexual practices of a significant proportion of the general population. Moreover, they indicate that there are individuals and groups of individuals with

lifestyles presenting greater risk, including both their regular use of alcohol and/or illegal drugs and their greater potential exposure to STIs, along the lines of the concept of lifestyles of greater/lesser risk put forward

Table 2. Population strata according to use, among women, of contraceptive methods other than condoms at the last vaginal sexual intercourse. Brazil, 2005. (n = 986)

Population stratum	% use in stratum	% nonuse in stratum	% of population in stratum
Women aged 35 to 49 years who made use of drugs* (n = 35)	25.7	74.3	3.5
Women aged 35 to 49 years who did not make use of drugs* (n = 349)	43.3	56.7	35.4
Women aged 16 to 34 years who made use of drugs* (n = 80)	48.8	51.2	8.1
Women aged 16 to 34 years in classes D and E who did not make use of drugs* (n = 176)	55.1	44.9	17.8
Women aged 16 to 34 years in classes A, B and C who did not make use of drugs* (n = 346)	64.7	35.3	35.1

* Relating to regular use of alcohol (four or more times a week) or use of illegal drugs
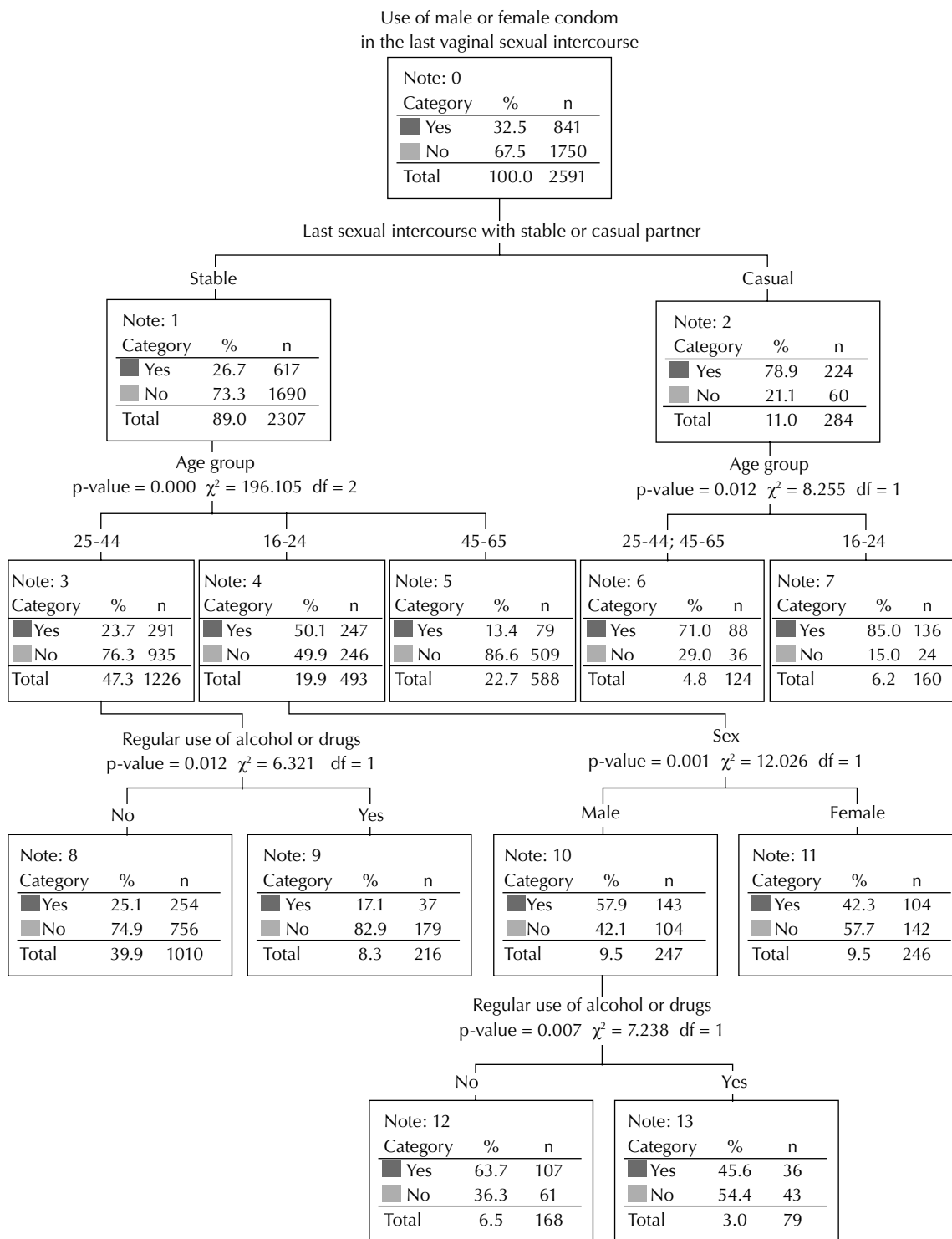
Figure 1. CHAID model for use of male or female condom at the last sexual intercourse. Brazil, 2005

by authors such as Fortenberry et al.[7]

The modulating effect of psychoactive substances on sexual practices has been little investigated in population-based studies exploring such interrelationships through multivariate analyses. Two Brazilian stud-

ies have analyzed the consumption of psychoactive substances (cocaine and crack) as predictors of risky behavior among (respectively) professional female sex workers in Santos, State of São Paulo,[17] and in a cohort of men who had sex with men in Rio de Janeiro.[15] In

Use of any other contraceptive
method in the last sexual intercourse

Note: 0		
Category	%	n
■ Yes	52.7	520
▢ No	47.3	466
Total	100.0	986

Age group (within fertile age range)
p-value = 0.000 χ^2 = 30.932 df = 1

16-24; 25-34

Note: 1		
Category	%	n
■ Yes	59.8	360
▢ No	40.2	242
Total	61.1	602

Regular use of alcohol or drugs
p-value = 0.030 χ^2 = 4.687 df = 1

No

Note: 3		
Category	%	n
■ Yes	61.5	321
▢ No	38.5	201
Total	52.9	522

Yes

Note: 4		
Category	%	n
■ Yes	48.8	39
▢ No	51.2	41
Total	8.1	80

Social class
p-value = 0.033 χ^2 = 4.565 df = 1

Classes A/B/C

Note: 7		
Category	%	n
■ Yes	64.7	224
▢ No	35.3	122
Total	35.1	346

Classes D/E

Note: 8		
Category	%	n
■ Yes	55.1	97
▢ No	44.9	79
Total	17.8	176

35-49

Note: 2		
Category	%	n
■ Yes	41.7	160
▢ No	58.3	224
Total	38.9	384

Regular use of alcohol or drugs
p-value = 0.045 χ^2 = 4.032 df = 1

No

Note: 5		
Category	%	n
■ Yes	43.3	151
▢ No	56.7	198
Total	35.4	349

Yes

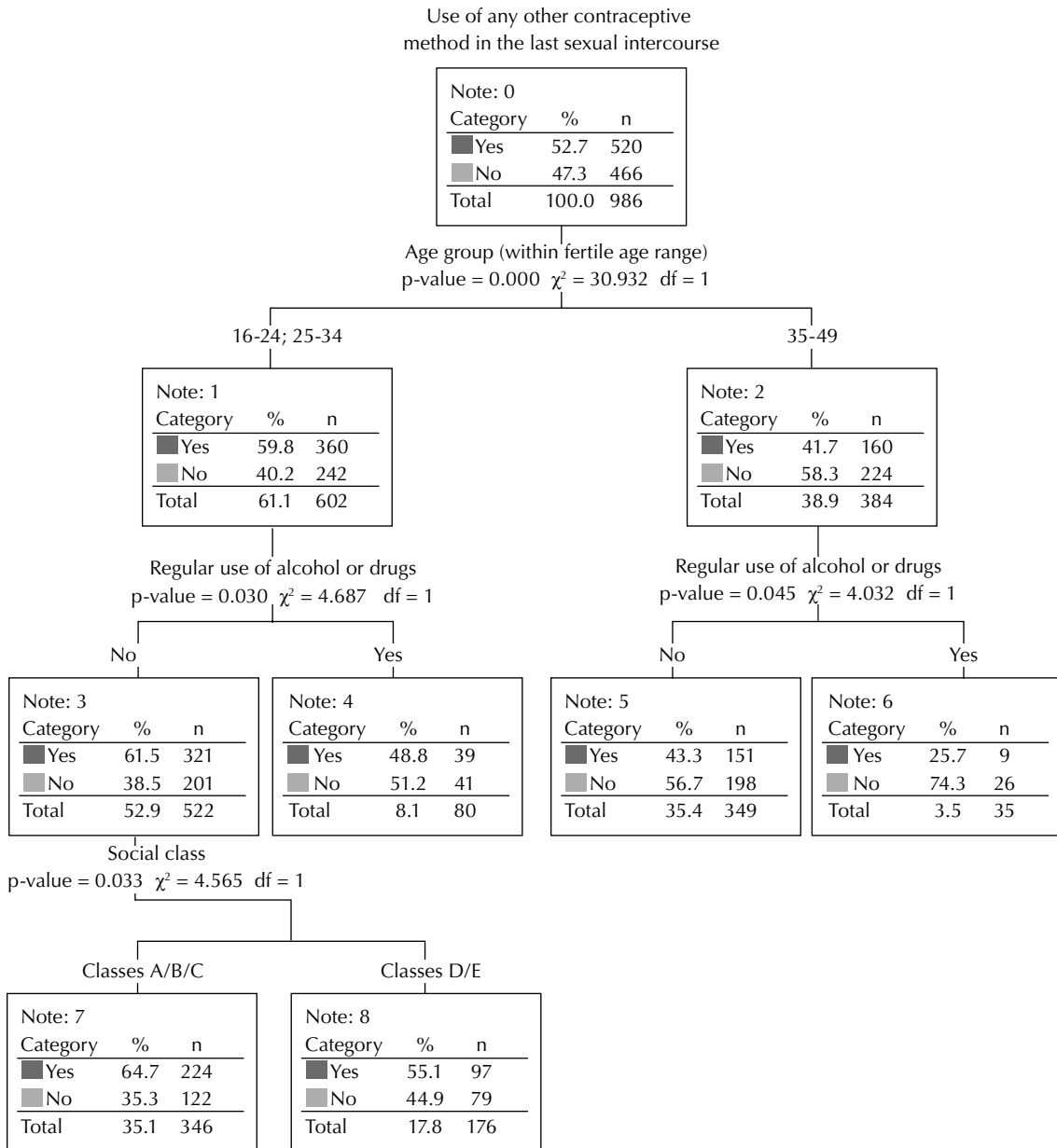| Note: 6		
Category	%	n
■ Yes	25.7	9
▢ No	74.3	26
Total	3.5	35

Figure 2. CHAID model for use, among women, of contraceptive methods other than condoms at the last vaginal sexual intercourse. Brazil, 2005.

both of these studies, the consumption of cocaine and crack was shown to be an independent predictor for unprotected sexual activity, with a significant difference between social classes, to the detriment of those who used drugs and belonged to less favored social strata.

Studies conducted in sub-Saharan Africa have established a consistent association between abusive consumption of alcohol and the risk of engaging in risky sexual practices, both among patients seeking attendance in a clinical for treating STIs in South Africa[14] and in a representative sample of the general population in Botswana.[19] In both of these studies, abusive use of alcohol was shown to be associated with risky sexual practices, with a significant difference between genders. Among men, it was shown to be associated with paying for sexual partners (in cash, goods or psychoactive substances), regardless of whether the women were sex workers or had no previous involvement with commercial sex. Among the women, complementary behavior relating to such conduct among men was observed, which was translated into receiving money, favors or abused substances in exchange for sex.

In a study developed among injecting drug users and their social relationship networks in a peripheral district

of Porto Alegre (Southern Brazil) Piccolo & Knauth[10] showed that it is essential to understand drug consumption and behavior presenting the risk of contracting HIV/AIDS in a contextualized manner. They found that drug consumption was associated with risky behavior because of the nature of the affective and sexual relationships, the subjective role of the individuals involved in such relationships and their representations regarding individual and group vulnerability to HIV/AIDS, within a context of marginalization and violence.

Therefore, better comprehension of different ways of living may provide backing for assessments and proposals for preventive interventions that are sensitive to the specific contexts in which these practices and behavioral patterns occur, and to the values and attitudes of different strata of society. Interventions aimed at particularly vulnerable strata, such as injecting drug users, may be shown to be inappropriate for the general population, and vice versa. This makes it necessary to understand the behavioral patterns, practices, attitudes and cultural values of each stratum, to the required depth and detail.

In a population-based study developed in the United States between the end of the 1980s and the middle of the 1990s, Bradner et al[2] showed an association between older age groups and greater prevalence of STIs among male interviewees. They also observed that male adolescents had a greater chance, in comparison with older males, of having received preventive education regarding HIV/Aids or STIs. In this respect, the more consistent use of condoms among younger individuals in the present study is auspicious. Nevertheless, it must be taken in its relative context, considering that older individuals in long-duration stable relationships experience a progressive decline in motivation to use condoms within the context of such relationships. To investigate this possibility would require additional analyses taking into account the possible effects of placing these individuals in different age groups and in stable relationships of differing duration.

Even after taking into consideration the limitations resulting from an exploratory study based solely on interviewees' reports, the fact that this was a sample representative of the urban population of Brazil and not of particularly vulnerable populations (such as samples selected from among injecting drug users and/ or drug-dependent individuals[16]) reinforces the need to implement public policies directed towards the general population, with regard to preventing drug consumption, alcohol use, STIs and HIV/AIDS. Such policies should provide backing for structural interventions that,

in addition to enabling changes in individual behavior, may contribute towards changing the adverse conditions to which particularly vulnerable individuals are subjected. Initiatives of this nature have been shown to be fruitful in a variety of contexts, including among populations of illegal drug users. A prejudiced view that such individuals would be impervious to major changes almost continually lingers around them, although this has repeatedly been disavowed in the literature.[1]

The interrelationships between sociodemographic variables and the consumption of psychoactive substances seems to be even more complex in relation to contraceptive practices other than condom use. In this case, a pronounced age-related effect was observed among the women, along with a differential due to social class among the younger women. The possible modulating effect of psychoactive substances on contraceptive practices seemed to be clearer in relation to the more mature women, with more evident interrelationships. Among younger women, social class seemed to perform a more important role.

Among the women in older age groups, the importance of female sterilization increased in importance. Vieira et al[18] and Schor et al[13] documented that, with the passage of the years, the frequency of using contraceptive pills decreased and the proportion of sterilized women increased, with clearly contrasting patterns between women under and over 30 years of age. The differences demonstrated in the present study regarding the interrelationship between consumption of psychoactive substances and contraceptive practices among young and mature women may be associated with alternatives for sexual and reproductive health, which are qualitatively different for women in these two strata. This deserves additional studies specifically aimed at this question.

There are no studies, either in the national or in the international literature, exploring these interrelationships beyond the stereotype of the young single drug-dependent mother and the usual toxicological studies on the harmful effects of alcohol and drugs on fetal integrity. This is perhaps because of the complexity of the reproductive decisions among women belonging to different socioeconomic and cultural strata and with different patterns of alcohol and drug consumption.

These questions add a new dimension in formulating and establishing integrated policies aimed at preventing drug and alcohol abuse, STIs and HIV/AIDS. They need to be inserted in the broader agenda regarding the sexual and reproductive health of the population as a whole.

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