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Sexual behavior and practices among men and women, Brazil 1998 and 2005

ABSTRACT

OBJECTIVE: To compare basic findings from two studies on sexual behavior and practices among women and men and their associations with sociodemographic characteristics of this population.

METHODS: Data analyzed were obtained by a questionnaire applied to a probabilistic sample comprised of 3,423 people in 1998, and 5,040 people in 2005, all aged between 16 and 65 years, and living in urban areas of Brazil. Comparative analyses were performed by sex and year of research, and according to sociodemographic variables, using Pearson's chi-square test.

RESULTS: The number of sexual partners in the year that preceded the interview decreased from 29.5% to 23.1% among men. Variability in sexual behavior and practices according to age, level of education, marital status, religion and place of residence, in addition to specific characteristics based on sex, was observed. There was also an increase in the proportion of women who began their sexual life in the 16-to-19-year age group and had completed up to elementary school, or lived in Southern Brazil. Moreover, it was observed an increase of sexual activity reported by women in the last year, and a decrease among men over 55 years of age, Protestant/Pentecostal, or separated/widowed. The proportion of men with more than one sexual partner in the last year decreased among those aged between 25 and 44 years or who have completed up to high-school. There was an increase in oral sex practice reported by women who are over 35 years of age or live in Northern/Northeastern Brazil.

CONCLUSIONS: Comparative analysis from 1998 to 2005 suggested a tendency towards differences between women and men decreasing. This probably results from a pattern of change characterized by an increase in the frequency of female behavior investigated and a decrease in the frequency of male behavior.

DESCRIPTORS: Sexual Behavior. Gender and Health. Health Knowledge, Attitudes, Practice. Population Studies in Public Health. Brazil. Cross-sectional Studies.

INTRODUCTION

From the late 1990's on, with the emergence of AIDS, population surveys on sexual behavior and practices began to be conducted. These surveys sought to better understand the relationship between the practice of sexuality and HIV sexual transmission – responsible for a large number of cases in countries

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suffering from this epidemic.^{12-14,16,a,b,c}

Even though there is not a direct relationship, or one that can be proved, between changes in sexual behavior and the incidence of HIV infection and other sexually transmitted infections (STI), according to Fishbein & Pequegnat,^{9,15} these surveys constitute an important source of information to assess the impacts of intervention practices and HIV prevention policies in relation to sexual behavior.

In this sense, the perspective of cross-sectional time-series data is particularly useful as it enables comparisons throughout time and, thus, identifies eventual changes in behavior, practices and attitudes towards sexuality. One example is the research conducted by the *Centro Brasileiro de Análise e Planejamento – Cebrap* (Brazilian Center for Analysis and Planning) in 1998^d and 2005,^e at the request of the *Coordenação Nacional de DST e Aids/Ministério da Saúde* (Ministry of Health's National STD/AIDS Coordination).

Information about HIV/AIDS available in Brazil reveals an epidemic with relevant regional differences, and also distinct ways as to how populations are affected,⁸ emphasizing the importance of considering the dimensions of gender, social class, ethnic group and generation. Analyses considering men and women separately are fundamental to identify and understand differences in sexual behavior patterns,¹⁰⁻¹² as well as to adopt prevention and healthcare measures.

This article aimed to compare findings from two studies on sexual behavior and practices by women and men, and also their associations with the population's sociodemographic characteristics.

METHODS

An exploratory analysis of several indicators was the approach chosen to provide a broader view of the sexual behavior of the population of men and women, thus pointing to possible changes in patterns from 1998 to 2005.

The analyses refer to findings of the survey "*Comportamento Sexual e Percepções da População Brasileira sobre HIV/Aids*"^c (Sexual behavior and perceptions of the Brazilian population regarding HIV/AIDS), carried out in 2005, compared with a similar survey carried out in 1998.^d

Data were obtained from a probabilistic sample, in multiple stages, from the Brazilian population aged between 16 and 65 years, living in Brazil's greater urban areas.⁴ In 1998, 1,835 women and 1,489 men were interviewed, totaling 3,324 individuals; while in 2005, 2,742 women and 2,298 men were interviewed, totaling 5,040 individuals. The research methodology and the sample design are described by Berquó & Barbosa³ and Bussab,⁴ respectively.

Selection of the variables analyzed was based on two criteria so as to constitute indicators related to STI/HIV transmission, and to allow comparisons between 1998 and 2005. Thus, the variables refer to: the sexually active population throughout life and in the 12 months preceding the interview; individuals who had sex with a same-sex partner throughout life; number of sexual partners in the 12 months preceding the interview; sexual practices adopted with the last partner (steady and/or casual).

Sexual relations were defined as the practice of oral sex or sex with either anal or vaginal penetration. Therefore, at all moments when the questionnaire mentioned sexual relations, this was clarified as follows: "Have you ever had sexual relations, that is, have you had sex in any of the following ways: sex with vaginal or anal penetration or oral sex?"

The sexually active population throughout life shows the number of individuals who have already had sexual relations at least once in their lifetime. The sexually active population in the 12 months preceding the interview included men and women who reported at least one sexual relation in this period, among those who already were sexually active. The differentiation between these two indicators, proposed by Cleland & Ali,⁵ enables the distinction between "primary abstinence", identified as the beginning of sexual life, and "temporary or secondary abstinence", characterized by the interruption of sexual relations, which could be associated with, among other factors, the selection of sexual partners and/or the frequency of sexual relations.⁵

The occurrence of sexual relations with same-sex partners was analyzed in relation to the lifetime period exclusively, based on the question: "Have you ever had sexual relations with people from the same sex?". The variables "number of sexual partners" and "sexual practices" were analyzed only in relation to the 12 months preceding the interview.

^a Agence Nationale de Recherches Sur le Sida et les Hépatites Virales. Dossier de presse - Premiers résultats de l'enquête "Contexte de la sexualité en France". Paris; 2007. Available from: <http://www.anrs.fr/index.php/anrs/content/download/483/3662/file/DP%2013%20mars%2007%20-%20Premiers%20r%C3%A9sultats%20de%20l%5C'enqu%C3%Aate%20CSF.pdf>

^b Arredondo A, Goldstein E, Olivera MP, Bozon M, Giraud M, Messich A, et al. Estudio nacional de comportamiento sexual: primeros analisis, Chile 2000. Santiago: Ministerio de Salud.Comisión Nacional del Sida; 2000

^c Naciones Unidas. Programa para El Desarrollo. Actitudes, información e conductas en relación con el VIH SIDA en la población general: informe para el establecimiento de la línea de base para el proyecto Actividades de Apoyo a la Prevención y Control del VIH/SIDA en Argentina. Buenos Aires; 2005.

^d Berquó E, coordenador. Comportamento sexual da população brasileira e percepções do HIV/AIDS. Brasília (DF): Ministério da Saúde, Secretaria de Políticas de Saúde, Coordenação Nacional DST e Aids; 2000. (Série avaliação, 4).

^e Research conducted by the Centro Brasileiro de Análise e Planejamento [Brazilian Center of Analysis and Planning] (CEBRAP) and the Brazilian Ministry of Health.

The variable that referred to the number of sexual partners in the last 12 months was constructed from the question: "In the last 12 months, how many people did you have sexual relations with?".

Among sexual practices described by the interviewees, the occurrence of oral sex and sex with vaginal or anal penetration with the last partner (steady or casual) in the 12 months preceding the interview was selected for analysis.

The sociodemographic variables selected were: age group, categorized into the 16-to-19, 20-to-24, 25-to-34, 35-to-44, 45-to-54, and 55-to-65-year age groups whenever possible; level of education, categorized as elementary school (including illiterate), high-school and college; ethnic group/color, dichotomized into White and non-White (Black, mixed race, Asian and Indigenous); marital status: single, married/cohabitating relationship, separated/divorced/widowed; religion, according to the following categories: Catholic, Protestant/Pentecostal, others and none; geographic region of residence in the country: North/Northeast, Central-West/Southeast, South and state of São Paulo.

Bivariate analyses were conducted using Pearson's chi-square test and were adjusted with the incorporation of information from the sample design, using the SPSS 13.0 statistical software's complex samples module. Analyses were performed by sex and year of survey, where a significance level of 5% was adopted for all statistical tests. A 5% significance level was used as criterion for all analyses.

Given the reduced sample size of certain groups of interest, comparative analyses between 1998 and 2005 were shown exclusively when these were likely to produce reliable estimates for both periods. Whenever sample size enabled, stratified analyses of the demographic variables selected were performed. Comparative analyses by sex according to year were only shown in case of statistically significant differences.

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

Results related to the sexually active population throughout life are shown on Table 1. The proportion of women and men who reported having had sexual relations sometime during their lives remained unchanged for the 1998 and 2005 population groups. However, differences according to sex, with a greater proportion of men compared to women, could be observed. These differences were statistically significant in both periods studied.

Analysis by age group revealed a non-homogeneous distribution of women and men, in both periods, with

women beginning their sexual life later than men. A slight decrease in the proportion of sexually active men in the 20-to-24-year and 35-to-44-year age groups was observed.

As regards the level of education, a smaller proportion of people from both sexes, who had completed up to high-school and begun their sexual life, was recorded in 2005. However, among women who had completed up to elementary school, a statistically significant increase in this proportion could be observed, exclusively associated with young girls aged between 16 and 19 years.

As for religion, the proportion of men who had begun their sexual life is lower among Protestants/Pentecostals than among Catholics or those from other religions. Among women the distribution was found to be independent from religion.

Analysis according to geographic region of residence enabled to verify an increase in the number of sexually active women in Southern Brazil from 1998 to 2005, associated with teenagers aged 16 to 24 years and women from 25 to 34 years.

Results related to the sexually active population in the last year are shown on Table 2. The proportion of sexually active women and men who reported having had sexual relations in the year preceding the interview remained unchanged in the 1998 and 2005 population groups. This proportion was much greater among men than women, and these differences were statistically significant in both years.

Distribution by age group of sexually active individuals in the year preceding the interview was not homogeneous among women in both periods; among men, it was not homogeneous in 2005 exclusively ($p < 0.0001$).

In 2005, the smallest proportions of sexually active men in the year preceding the interview were concentrated in the 16-to-19 and 55-to-65-year age groups. From 1998 to 2005 there was an apparent decrease in the proportion of sexually active men in the last year, beginning at 45 years of age. Yet, this difference was not statistically significant.

Among women, the distribution remained homogeneous in the first four age groups, in both periods analyzed, decreasing from age 45 onward ($p < 0.0001$). Concomitantly, it could be observed an increase in the proportion of sexually active women in the last year, in the 55-to-65-year age group, a difference that was not statistically significant.

As regards level of education, the pattern observed in 1998 was confirmed in 2005: a smaller proportion of women who had completed up to elementary school had an active sexual life in the year preceding the interview (1998, $p = 0.0609$; 2005, $p < 0.0001$). This characteristic was found to be exclusively associated with women aged

Table 1. Distribution of sexually active men and women throughout life, according to variables selected. Brazil, 1998 and 2005.

Variable	Sexually active throughout life									
	Men				p	Women				
	1998		2005			1998		2005		p
n	%	n	%	n	%	n	%			
Age group (years)										
16-19	172	67.8	207	67.4	0.9503	141	54.3	153	55.2	0.9310
20-24	205	97.6	339	92.4	0.0086	165	86.5	276	84.8	0.6439
25-34	387	98.9	558	98.4	0.5949	461	94.6	624	97.2	0.1405
35-44	354	100.0	469	99.2	0.0000	396	98.7	556	98.5	0.8583
45-54	231	99.0	411	99.8	0.1507	226	97.3	489	98.3	0.5274
55-65	147	100.0	263	99.8	0.3143	162	97.3	328	97.9	0.5956
p	< 0.0001		< 0.0001			< 0.0001		< 0.0001		
Level of schooling										
Elementary school	970	93.8	1121	96.6	0.1234	984	90.7	1257	97.4	0.0000
High-school	360	92.6	779	88.9	0.2226	431	85.3	744	83.7	0.6469
College	164	100.0	322	98.3	0.1800	135	91.7	395	92.4	0.8707
p	0.3162		< 0.0001			0.2059		< 0.0001		
Ethnic group/color										
White	762	93.3	1014	94.8	0.5643	760	88.2	1131	92.9	0.0990
Non-White	706	95.5	1225	93.9	0.5963	757	90.4	1276	91.0	0.6719
p	0.5781		0.5485			0.4767		0.2765		
Religion										
Catholic	1010	95.9	1473	96.0	0.9659	1067	89.9	1526	91.9	0.2274
Protestant/Pentecostal	209	86.2	408	88.4	0.7921	276	85.1	580	90.4	0.4112
Others	65	96.8	105	96.0	0.8224	112	94.1	170	95.8	0.5846
None	207	93.8	261	92.7	0.7642	92	89.0	145	92.8	0.5045
p	0.1038		0.0002			0.5617		0.2633		
Marital status										
Single	512	84.6	775	84.5	0.9689	320	63.3	520	70.7	0.1554
Married/cohabitating	930	100.0	1371	100.0	-	1010	99.9	1555	100.0	0.1020
Separated/widowed	52	100.0	102	100.0	-	220	100.0	350	100.0	-
p	< 0.0001		< 0.0001			< 0.0001		< 0.0001		
Geographic region										
North/Northeast	374	94.3	584	95.1	0.6420	398	87.6	636	90.4	0.3004
Central-West/ Southeast	535	91.9	698	93.5	0.6325	554	90.9	727	91.4	0.8313
State of São Paulo	372	96.5	657	93.2	0.2816	418	90.4	687	92.4	0.6739
South	213	95.4	308	95.0	0.8734	180	85.4	375	94.2	0.0046
p	0.4752		0.5892			0.6440		0.3563		
Total	1494	94.1	2247	94.0	0.9534	1550	89.3	2425	91.8	0.1342

over 45 years. On the other hand, men's active sexual life in the year preceding the interview did not reveal any significant association with the level of education.

In terms of ethnic group/color, a homogeneous distribution in both periods was observed, among men and women, with a reduction in the proportion of White men with active sexual life in the year preceding the interview ($p=0.0229$).

As regards religion, a homogeneous distribution among men could be verified in both periods; and among women, in 1998. From one period to another, it was possible to notice a reduction ($p=0.0377$) in the proportion of Protestant/Pentecostal men with active sexual life in the year preceding the interview.

In terms of marital status, there was a decrease in the percentage of sexually active men in the year prior to

the interview among those who were separated and widowed, between both periods ($p=0.0051$), whereas, among separated and widowed women, this percentage increased ($p=0.0006$). When this analysis was also adjusted by age, it was observed that the increase among separated and widowed women occurred in the age groups from age 25 onward; among men in the same situation, the decrease occurred from age 35 onward.

From 1998 to 2005, there was a reduction in the percentage of sexually active men living in the state of São Paulo in the year preceding the interview ($p=0.0002$). When this analysis was also adjusted by age, it could be observed that this reduction was exclusively associated with men aged over 45 years.

In 2005, 3.2% of men reported having had sexual relations with other men at some point in their lives – the same proportion observed in 1998 ($p=0.7677$). In 1998, 3.0% of women reported having had sexual relations with other women at some point in their lives. Comparative analyses between 1998 and 2005 were performed only for the male population, due to the reduced size of the female sample that reported same-sex relationships in 2005. In addition, it was not possible to analyze the relation between sociodemographic variables and same-sex relationships.

As regards the number of partners in the year preceding the interview, differences in sexual behavior among men and women were more evident. The proportion of men who mentioned more than one sexual partner was approximately five times greater than that of women in both periods. This proportion decreased in the male group and remained unchanged among women. Results referring to the number of partners in the last year are shown on Table 3.

It was not possible to perform comparative analysis according to sociodemographic variables for the female population between 1998 and 2005, given the reduced size of this part of the female sample (5.2%). Even though the proportion of men who had more than one partner in the year preceding the interview continued to drop in relation to age, this decrease was concentrated among men aged between 25 and 34 years ($p=0.0307$) and between 35 and 44 years ($p=0.0354$). Among teenagers aged between 16 and 19 years, a reduction of about 15% was observed, though not statistically significant.

In the male population as a whole, there was a reduction in the number of partners in the group who had completed from elementary school to high-school. This reduction suggests a positive relation between number of sexual partners in 2005 and the level of education.

In addition to the differences per age group and level of education observed, between 1998 and 2005, a decrease in the proportion of Catholic, White and single men who had more than one partner in the last year was verified.

Affiliation with any religion was found to be associated with a greater proportion of single-partner relationships in the last year, both in 1998 and in 2005.

In terms of distribution by geographic region of residence, it could be observed a significant reduction in the number of men who had more than one sexual partner in the year preceding the interview in the Central-West/ Southeast regions (32.2%, in 1998, 17.5%, in 2005; $p=0.0038$). In the North/Northeast regions, proportions were similar in both periods, approximately double the proportions found in the other regions in 2005 ($p<0.0001$).

As regards sexual practices, in 2005, almost 100% of sexually active people in the year preceding the interview reported the practice of vaginal sex with the last steady or casual partner. Only 1% of men and 0.3% of women did not mention it – proportions comparable to those observed in 1998. Given the following set of choices – vaginal, anal and oral sex – 60.8% of men reported vaginal sex as an exclusive practice in 1998, and 53.6% in 2005 ($p=0.0530$); among women, these figures were 62.7% and 57.3%, respectively ($p=0.2720$).

Due to the almost absolute predominance of vaginal sex, stratified analyses will be shown for oral sex (Table 4) and anal sex (Table 5) exclusively.

No significant differences in the practice of oral sex for the 1998 and 2005 samples were observed. Less than half of men and women reported having practiced oral sex with the last sexual partner (Table 4).

In the periods analyzed, the distribution of people who practiced oral sex was found to be heterogeneous for both sexes, age group, level of education, religion, marital status or number of partners in the year preceding the interview. This practice decreased from the age of 35 onward (in 1998 and 2005), even though a significant increase in the 35-to-44-year age group of women ($p<0.0001$) and 45-to-65-year age group of men ($p=0.0143$) was observed.

Reported oral sex increased from 1998 to 2005, according to the level of education, among both women and men. Moreover, an increase in this practice among women who had completed up to elementary school was observed ($p=0.0443$).

Smaller proportions of reported oral sex were recorded among men and women affiliated with Catholicism or Protestantism/Pentecostalism, in comparison with the remaining categories. Differences were close to 20%.

In both periods, the practice of oral sex was found to be more widespread among single women and men, or those with more than one sexual partner in the last year. Statistically significant increase in this practice among married men/those in a cohabitating relationship ($p=0.0150$) and with a single female partner ($p=0.0037$)

Table 2. Distribution of sexually active men and women in the year preceding the interview, according to variables selected. Brazil, 1998 and 2005.

Variable	Sexually active in the year preceding the interview									
	Men					Women				
	1998		2005		p	1998		2005		p
n	%	n	%	n		%	n	%		
Age group (years)										
16-19	158	92.0	177	87.0	0.2131	130	91.9	148	96.7	0.1706
20-24	197	96.3	317	94.7	0.4345	155	94.0	258	93.4	0.8239
25-34	360	93.2	538	97.0	0.1628	420	91.2	585	94.2	0.3187
35-44	345	97.5	448	96.4	0.3870	351	88.8	505	91.4	0.2697
45-54	225	97.6	384	93.8	0.0745	175	77.5	375	76.8	0.9038
55-65	137	93.1	229	87.0	0.0677	66	40.8	183	56.0	0.0774
p	0.1681		< 0.0001			< 0.0001		< 0.0001		
Level of schooling										
Elementary school	915	94.3	1025	92.4	0.3284	795	80.7	1022	81.6	0.7720
High-school	346	96.2	732	94.6	0.4218	379	87.8	668	90.1	0.4400
College	161	97.9	311	96.4	0.3715	124	91.9	343	86.7	0.1240
p	0.2533		0.0612			0.0609		< 0.0001		
Ethnic group/color										
White	736	96.6	937	93.8	0.0229	640	84.2	962	85.3	0.6998
Non-White	663	93.9	1150	94.1	0.9892	627	82.9	1080	84.8	0.2574
p	0.2007		0.8870			0.4629		0.6939		
Religion										
Catholic	968	95.8	1387	94.6	0.2433	916	85.9	1312	86.3	0.8440
Protestant/Pentecostal	201	96.4	367	91.5	0.0377	212	76.8	478	82.5	0.1371
Others	63	98.0	96	93.6	0.2220	82	73.4	131	77.1	0.7032
None	186	89.6	243	93.6	0.4532	83	90.8	129	89.5	0.7918
p	0.1425		0.3593			0.0535		0.0058		
Marital status										
Single	459	89.6	669	88.2	0.6612	244	76.2	407	78.6	0.6030
Married/ cohabitating	917	98.6	1352	98.7	0.8210	999	98.9	1503	96.8	0.0030
Separated/widowed	46	89.4	72	71.2	0.0051	55	25.0	144	41.3	0.0006
p	< 0.0001		< 0.0001			< 0.0001		< 0.0001		
Geographic region										
North/Northeast	351	93.9	551	94.5	0.6933	334	83.9	553	87.4	0.1140
Central-West/Southeast	500	93.5	644	94.0	0.8565	447	80.8	597	82.2	0.6864
State of São Paulo	366	98.4	601	91.8	0.0002	372	89.0	583	84.9	0.2428
South	204	95.8	297	96.6	0.6050	144	79.9	321	86.1	0.0983
p	0.1042		0.0517			0.1275		0.0581		
Total	1422	95.2	2093	93.9	0.3150	1297	83.7	2054	85.0	0.4631

was found to be significant. In both periods, reported oral sex remained more frequent in the White men and women group. When considering distribution by geographic region of residence, a change of pattern was verified between 1998 to 2005, with distributions that were not homogeneous. There was an increase in reporting among

men living in the North/Northeast regions ($p=0.0275$) and in the state of São Paulo ($p<0.0001$). On the other hand, there was a decrease ($p=0.0283$) among those who lived in the South region. An increase in reported oral sex among women who lived in the North/Northeast regions was recorded in 2005 ($p=0.0093$).

Table 3. Distribution of men and women who reported more than one sexual partner in the year preceding the interview, according to variables selected. Brazil, 1998 and 2005.

Variable	More than one partner in the year preceding the interview									
	Men					Women				
	1998		2005		p	1998		2005		p
n	%	n	%	n		%	n	%		
Age group (years)										
16-19	95	60.0	79	44.6	0.0736	-	-	25	16.8	-
20-24	94	47.7	157	49.5	0.7976	-	-	19	7.4	-
25-34	124	34.4	119	22.1	0.0307	-	-	37	6.4	-
35-44	76	22.1	60	13.4	0.0354	-	-	18	3.5	-
45-65	30	8.3	68	11.1	0.3135	-	-	7	1.3	-
p	< 0.0001		< 0.0001			-	-	< 0.0001		-
Level of schooling										
Elementary school	240	26.2	190	18.5	0.0105	-	-	42	4.1	-
High-school	136	39.4	187	25.6	0.0038	-	-	41	6.2	-
College	43	26.4	96	31.0	0.6764	-	-	22	6.5	-
p	0.1256		< 0.0001			-	-	0.1771		-
Ethnic group/color										
White	239	32.6	187	20.0	0.0009	-	-	46	4.8	-
Non-White	170	25.6	294	25.6	0.9971	-	-	60	5.6	-
p	0.1815		0.0120			-	-	0.5373		-
Religion										
Catholic	298	30.8	295	21.3	0.0023	-	-	57	4.3	-
Protestant/Pentecostal	30	14.9	75	20.5	0.6902	-	-	18	3.8	-
Others	-	-	26	27.2	-	-	-	18	13.4	-
None	84	45.2	86	35.6	0.4001	-	-	14	10.5	-
p	0.0150		0.0015			-	-	< 0.0001		-
Marital status										
Single	280	61.0	305	45.6	0.0057	-	-	66	16.2	-
Married/ cohabitating	116	12.7	141	10.5	0.3208	-	-	18	1.2	-
Separated/widowed	22	48.4	36	50.4	0.8922	-	-	22	15.5	-
p	< 0.0001		< 0.0001			-	-	< 0.0001		-
Geographic region										
North/Northeast	124	35.4	199	36.2	0.8711	-	-	30	5.3	-
Central-West/Southeast	161	32.2	112	17.5	0.0038	-	-	27	4.6	-
State of São Paulo	88	23.9	117	19.5	0.3772	-	-	33	5.7	-
South	46	22.5	53	18.0	0.3192	-	-	16	5.0	-
p	0.1833		< 0.0001			-	-	0.9215		-
Total	418	29.5	482	23.1	0.0197	68	5.2	106	5.2	0.9660

(-) data were not provided; comparative analyses were not performed when a minimum of 30 valid cases could not be achieved in both periods.

The practice of anal sex remained unchanged in both periods analyzed. Reporting was less frequent when compared to oral sex, and men mentioned its occurrence more often (Table 5). Comparative analyses between 1998 and 2005, according to sociodemographic variables, were not performed for the female population due to the reduced sample size. This practice was greater among young males aged between 16 and 19 years and it decreased with age; while among women, it was more frequent among those aged between 20 and 44 years.

As observed in relation to oral sex, the distribution of people who practice anal sex differed according to sex, level of education, religion, marital status or number of partners. Men and women who have completed up to elementary school, are affiliated with Catholicism or Protestantism/Pentecostalism, are married/in a cohabitating relationship, and had only one partner in the last year tend to report anal sex less frequently.

In the periods analyzed, reported practice of anal sex remained homogeneous among both White and

Table 4. Distribution of men and women who reported oral sex practice with the last sexual partner in the year preceding the interview, according to variables selected. Brazil, 1998 and 2005.

Variable	Oral sex									
	Men				p	Women				p
	1998		2005			1998		2005		
n	%	n	%	n	%	n	%			
Age group (years)										
16-19	89	62.8	84	49.2	0.1352	40	36.9	73	51.8	0.1633
20-24	98	56.5	182	58.7	0.7872	60	42.4	145	59.9	0.0358
25-34	175	51.6	314	60.1	0.1696	248	60.5	273	49.4	0.1616
35-44	108	32.2	184	42.6	0.1421	57	17.2	192	40.2	< 0.0001
45-65	46	13.7	146	24.9	0.0143	33	14.6	110	21.6	0.3183
p	< 0.0001		< 0.0001			< 0.0001		< 0.0001		
Level of schooling										
Elementary school	226	26.4	300	30.3	0.3764	130	17.5	239	25.0	0.0443
High-school	203	62.6	386	54.6	0.2185	225	63.0	320	50.5	0.0722
College	88	59.2	211	71.1	0.1747	82	73.9	225	71.4	0.7789
p	< 0.0001		< 0.0001			< 0.0001		< 0.0001		
Ethnic group/color										
White	317	45.5	433	47.9	0.5884	266	43.4	411	45.2	0.7976
Non-White	194	32.0	474	42.8	0.0664	170	29.6	379	38.0	0.1153
p	0.0252		0.0644			0.0058		0.0093		
Religion										
Catholic	335	38.0	564	42.0	0.2924	315	36.3	492	40.2	0.4658
Protestant/Pentecostal	-	-	140	39.5	-	43	21.9	160	35.4	0.0920
Others	-	-	58	64.2	-	48	64.1	71	57.1	0.5069
None	123	68.3	148	63.1	0.6626	33	43.6	70	58.8	0.0425
p	0.0003		< 0.0001			0.0010		< 0.0001		
Marital status										
Single	253	60.9	380	58.6	0.6936	104	52.5	238	61.2	0.3174
Married/ cohabitating	248	28.2	498	38.3	0.0150	318	32.5	492	35.1	0.6250
Separated/widowed	-	-	30	44.2	-	-	-	63	48.0	-
p	< 0.0001		< 0.0001			0.0260		< 0.0001		
Geographic region										
North/Northeast	82	25.6	197	36.3	0.0275	64	19.8	171	33.7	0.0093
Central-West/Southeast	261	55.8	274	44.7	0.0565	177	42.3	257	47.3	0.5246
State of São Paulo	79	22.9	340	59.0	0.0000	143	42.4	251	45.1	0.8281
South	93	49.1	99	34.0	0.0283	53	39.7	114	36.2	0.4944
p	< 0.0001		< 0.0001			0.1064		0.0012		
Nº. of partners (previous year)										
One	270	28.6	624	40.1	0.0037	-	-	723	39.6	-
More than one	247	64.0	285	61.4	0.6819	-	-	70	73.1	-
p	< 0.0001		< 0.0001			-		< 0.0001		
Total	516	38.9	909	45.0	0.1389	438	36.1	793	41.3	0.2847

(-) data were not provided; comparative analyses were not performed when a minimum of 30 valid cases could not be achieved in both periods.

non-White women and men. As regards distribution by geographic region of residence, homogeneity for both sexes was verified in 2005, with an increase in this practice by men in the state of São Paulo from 1998 to 2005 ($p < 0.0479$). Given the reduced sample size in 1998, this increase must be viewed with caution.

DISCUSSION

There is a debate in the literature concerning validity and reliability of data produced by surveys on sexual behavior and practices due to the subjective nature of this type of information, which may be influenced by memory bias, adequacy of response and other bias.^{10,11,15}

Table 5. Distribution of men and women who reported anal sex practice with the last sexual partner in the year preceding the interview, according to variables selected. Brazil, 1998 and 2005.

Variable	Anal sex									
	Men					Women				
	1998		2005		p	1998		2005		p
n	%	n	%	n		%	n	%		
Age group (years)										
16-19	54	38.2	53	31.2	0.4737	-	-	20	13.6	-
20-24	49	27.3	89	28.9	0.8564	-	-	49	20.1	-
25-34	105	30.3	154	29.6	0.9063	-	-	102	18.4	-
35-44	76	22.7	92	21.2	0.7883	-	-	94	19.6	-
45-65	-	-	76	12.9	-	-	-	47	9.2	-
p	0.0006		< 0.0001			-		0.0005		
Level of schooling										
Elementary school	152	17.6	175	17.7	0.9803	-	-	108	11.2	0.1882
High-school	120	37.1	195	27.7	0.1057	-	-	129	20.2	0.8051
College	-	-	88	29.3	-	-	-	71	22.3	0.1588
p	0.0028		0.0001			-		< 0.0001		
Ethnic group/color										
White	171	24.5	197	21.8	0.5027	-	-	157	17.2	0.3728
Non-White	120	19.6	264	23.9	0.3289	-	-	153	15.2	0.0013
p	0.2899		0.3743			-		0.2622		-
Religion										
Catholic	-	-	285	21.3	-	-	-	193	15.7	-
Protestant/Pentecostal	-	-	72	20.5	-	-	-	57	12.6	-
Others	-	-	27	30.2	-	-	-	32	25.9	-
None	-	-	78	33.4	-	-	-	29	24.8	-
p	-		0.0080			-		0.0028		
Marital status										
Single	155	37.0	205	31.7	0.4081	-	-	79	20.1	-
Married/cohabitating	139	15.7	235	18.1	0.4410	-	-	209	14.9	-
Separated/widowed	-	-	22	31.8	-	-	-	24	18.1	-
p	< 0.0001		< 0.0001			-		0.0480		
Geographic region										
North/Northeast	57	17.5	123	22.6	0.1595	-	-	74	14.7	-
Central-West/Southeast	168	35.8	156	25.6	0.0808	-	-	96	17.6	-
State of São Paulo	30	8.5	125	21.9	0.0479	-	-	98	17.4	-
South	47	24.6	59	20.3	0.3906	-	-	44	13.8	-
p	0.0007		0.4857			-		0.4170		
N° of partners (previous year)										
One	132	13.9	272	17.5	0.2071	-	-	270	14.8	-
More than one	170	43.3	191	41.1	0.7676	-	-	41	41.4	-
p	< 0.0001		< 0.0001			-		< 0.0001		
Total	301	22.5	463	23.0	0.9014	173	14.2	312	16.1	0.5383

(-) data were not provided; comparative analyses were not performed when a minimum of 30 valid cases could not be achieved in both periods.

As this refers to behavior related to people's private, intimate life, reporting of this information is particularly susceptible to social pressures and may thus lead to responses that are considered socially desired.¹⁰

In addition, temporal trends of sexual behavior data

should take into consideration a possible impact on responses caused by cultural changes that have occurred throughout time. A sexual practice, when experienced at different moments, could be reported with more or less frequency, due to more or less liberal cultural contexts in relation to the practice at the time in question.

However, as emphasized by Bastos et al,² “population-based surveys are usually not prone to systematic errors that may compromise comparisons and contrasts, once non-systematic errors are minimized and their sampling strategy is handled in a proper way, as well as the reliability and validity of the instruments used”.

Taking all this into consideration, it could be observed that there were no significant changes in sexual behavior patterns among women and men from 1998 to 2005 for the population as a whole. The only exception was the number of sexual partners in the year preceding the interview, which decreased among men.

Different sexual behavior patterns according to gender remained similar, namely, women begin their sexual life later; a smaller proportion of women continued to be sexually active in the last year and an even smaller proportion mentioned more than one sexual partner in the last year. Even though results reported by Szwarcwald et al³ do not offer estimates of the population with more than one partner in the last year, patterns found in the present study are comparable to those found by these authors in 2004.

Also, changes in male and female patterns of sexual practices with the last partner were not identified. Differences by gender were exclusively observed in relation to anal sex, less frequent among women.

Even though there are no available data for the same age group in Brazil, a population survey conducted by Heilborn et al¹¹ in 2002 among young males and females aged between 18 and 24 years, living in the cities of Salvador (Northeastern Brazil), Rio de Janeiro (Southeastern Brazil) and Porto Alegre (Southern Brazil), recorded a predominance of vaginal sex. Oral sex was found to be a more widespread and less asymmetric practice among men and women. Anal sex was less frequent in the sexual repertoire of teenagers and showed significant differences by gender.

On the other hand, differences by gender, identified in the reporting of anal sex, were not found in studies performed in countries such as the United States, England and Australia.^{7,13,14} According to Heilborn et al,¹¹ the higher frequency of anal sex among males in Brazil possibly reflects the fact that men place a high value on reporting this practice, more than it evidences its occurrence. However, frequencies observed in the present study, among both women and men, were found to be at higher levels than those reported by studies

performed in England¹³ and the United States,¹⁴ where indicators comparable to the ones from this study were used. This fact may indicate that anal sex is more frequent in Brazil. Similar patterns were also observed in Chile in 2000.^b

In terms of patterns related to same-sex relationships throughout life, no differences among men and women were found: about 3% of the population interviewed (1998) reported having had sexual relations with same-sex partners throughout life, a proportion that remained the same among men in 2005.¹ Similar pattern was found in France in 2006.^c Comparative analysis between the French findings in 2006 and data available for 1992 in this same country reveals stability of estimate throughout time among men and an increase in this proportion among women. In Brazil, however, it was not possible to establish reliable estimates for the female population in 2005, due to the small number of same-sex relationships reported. More than an objective reduction of the event, this finding suggests that, among women, reporting homosexual relationships still involves fear of prejudice and disapproval and, in this sense, it is more likely to be omitted in the research contexts. This was previously pointed out in an ethnographic study by Barbosa & Facchini.^d

If the analysis did not reveal substantial changes for the group of men and women, from 1998 to 2005, the stratified analyses showed a more diversified and complex picture. This picture is characterized by variability of behavior and sexual practices, according to age, level of education, marital status, religion, and geographic region of residence, factors that interact with each other in a particular way according to gender.

A more in-depth discussion about these inter-relationships requires multivariate analyses so that the effect of all the variables of sexual behavior and practices can be controlled. In spite of this, findings from the present study seem to point to a decrease in the differences between women and men, corroborating Bozon^a e Johnson et al's¹³ analysis of recent changes in France and England, respectively.

This reduction in differences was found to be associated, in the Brazilian case, with a pattern of change characterized by: an increase in the proportion of women who began their sexual life between 16 and 19 years of age, had completed up to elementary school, or lived in the South region; an increase in reported sexual activity

^a Ministério da Saúde. Coordenação Nacional de DST e AIDS. Pesquisa de conhecimento, atitudes e práticas na população brasileira de 15 a 54 anos, 2004. Brasília; 2006.

^b Arredondo A, Goldstein E, Olivera MP, Bozon M, Giraud M, Messich A, et al. Estudio Nacional de Comportamiento Sexual: Primeros Análisis, Chile 2000. Santiago: Comisión Nacional del Sida-Ministerio de Salud; 2000.

^c Agence Nationale de Recherches Sur le Sida et les Hépatites Virales. Dossier de presse - Premiers résultats de l'enquête "Contexte de la sexualité en France". Paris; 2007. Available from: <http://www.anrs.fr/index.php/anrs/content/download/483/3662/file/DP%2013%20mars%2007%20-%20Premiers%20r%C3%A9sultats%20de%20l%5C'enqu%C3%Aate%20CSF.pdf>

^d Barbosa RM, Facchini R. Mulheres, cuidados à saúde, gênero e diversidade sexual. São Paulo; 2006. (Relatório de pesquisa – Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq – Processo n. 401256/2004-9)/CNPq)

among women in the year preceding the interview; a reduction in similar reporting by men aged over 55 years, Protestant/Pentecostal, or separated/widowed; a decrease in the proportion of men with more than one sexual partner in the last year, among those aged between 25 and 44 years or who had completed up to high-school; and an increase in the reported practice of oral sex by women aged over 35 years or who lived in the North/Northeast regions.

Interpretation of changes that occurred in the behavior and practices throughout time requires caution and needs to take into consideration the possible impact of methodological issues previously pointed out. Nonetheless, successive observations – with repeatedly negative values among men and positive among women – raise the hypothesis that a process of change in sexual behavior and practices is taking place in Brazil. This change may be better understood through specific, in-depth analyses, and confirmed by repetition of research so as to obtain more points in time.

Until now, studies on tendency and changes in sexual behavior and practices in Brazil have been based on diverse research samples and tools. One exception was the *Pesquisa Nacional de Demografia e Saúde*

– *PNDS* (National Survey on Demography and Health) performed in 1986 and then repeated in 1996,^a which, however, did not prioritize such themes. For these reasons, temporal trend analyses of patterns of sexual behavior and practices in Brazil may not have been found in the literature consulted, following the example of studies performed in sub-Saharan African countries,^{5,6} England¹³ and France.^b

The difficulty to compare findings from the present study with similar Brazilian studies, in terms of the geographic reach and population coverage, is also associated with the analytical approach used to collect data on sexual behavior and practices. Other population studies on sexual behavior and practices were performed on a national level (2003^c and 2004^d). However, analyses conducted from these studies, when considering sex to be merely a category among other sociodemographic variables, did not emphasize their internal differences. This, in its turn, caused comparison with several results from the present study to be impracticable. Such fact probably reflects the unreasonable incorporation of gender into epidemiological studies and analyses in general, a perspective of analysis that has been internationally adopted by studies^{7,13,14,a} of this nature and which is vital for studies on sexuality.

^a Unpublished data.

^b Agence Nationale de Recherches Sur le Sida et les Hépatites Virales. Dossier de presse - Premiers résultats de l'enquête "Contexte de la sexualité en France". Paris; 2007. Available from: <http://www.anrs.fr/index.php/anrs/content/download/483/3662/file/DP%2013%20mars%2007%20-%20Premiers%20r%C3%A9sultats%20de%20l%5C'enqu%C3%Aate%20CSF.pdf>

^c França Jr I, Paiva V, Lopes F, Venturi G. Aspectos metodológicos e analíticos da pesquisa. Ministério da Saúde/Instituto Brasileiro de Opinião Pública e Estatística, Brasil-2003. São Paulo; 2003. Available from: http://www.aids.gov.br/data/documents/storedDocuments/%7BB8EF5DAF-23AE-4891-AD36-1903553A3174%7D/%7B588C389F-E032-449B-9787-C6DF78BFFDF9%7D/artigo_metodologia.pdf.

^d Ministério da Saúde. Coordenação Nacional de DST e AIDS. Pesquisa de conhecimento, atitudes e práticas na população brasileira de 15 a 54 anos, 2004. Brasília;2006.

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