

# Behavior assessment of women attending a sexually transmitted disease clinic in Vitória, Brazil\*

## Práticas comportamentais em mulheres atendidas em clínica de doenças sexualmente transmissíveis em Vitória, Brasil

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**Abstract:** BACKGROUND – Studies about sexual risk behaviors can provide information to support design strategies to control the spread of HIV infection.

OBJECTIVE: To assess sexual risk behaviors among women attending a sexually transmitted diseases clinic in Vitória, Brazil.

METHODS: A cross-sectional study was performed among women attending an STD/AIDS reference center. Enrolled participants were interviewed and provided a blood sample to determine HIV status.

RESULTS: A total of 276 women participated. among 284 selected; 109 (39.5%) were HIV-positive and 167 (60.5%) HIV-negative. Median age was 31 years (interquartile range (IQR)24-36) and 69% of women were between 18 and 34 years of age. Women reported high access to information about STD (87%) and AIDS (90%) but information about sexuality was less common (55%). HIV-positive women asked their partners to use condoms more often than HIV-negatives (31% vs. 5%,  $p=0.02$ ), and were more likely to have used a condom at last intercourse (65% vs. 33%,  $p<0.01$ ). Among all patients, questions regarding risk of HIV transmission through sexual intercourse (99.6%) and needle sharing (99.2%) were most frequently answered correctly, while questions regarding risk of HIV transmission through blood donation (57%) were least.

CONCLUSIONS: Though this population reports easy access to information and services for HIV/ sexually transmitted diseases, most report little understanding of unsafe sexual behaviors, particularly HIV-negative women.

Keywords: Reproductive Behavior; Risk factors; Risk-taking; Sexually transmitted diseases; Women's health

**Resumo:** FUNDAMENTOS - Estudos sobre comportamentos sexuais de risco fornecem informações para programar estratégias para o controle da expansão da infecção pelo HIV/AIDS.

OBJETIVO: Avaliar os comportamentos de risco sexual entre mulheres atendidas em clínica de doenças sexualmente transmissíveis em Vitória, Brasil.

MÉTODOS: Estudo de corte-transversal foi realizado com mulheres atendidas no Centro de Referência para DST/Aids. As pacientes selecionadas foram entrevistadas e autorizaram a coleta de uma amostra de sangue para determinar sorologia para HIV.

RESULTADOS: Um total de 276 mulheres participou, entre as 284 selecionadas; 109 (39,5%) eram HIV-positivas e 167 (60,5%) HIV-negativas. A mediana de idade foi 31 anos (distância interquartil 24-36) e 69% das mulheres tinham entre 18 e 34 anos de idade. As mulheres relataram alto grau de acesso a informações sobre doenças sexualmente transmissíveis (87%) e Aids (90%), mas as informações sobre saúde sexual foram menos comuns (55%). Mulheres HIV-positivas pediram a seus parceiros para usar preservativos mais comumente do que as HIV-negativas (31% vs. 5%,  $p=0,02$ ), e relataram com maior frequência o uso do preservativo na última relação sexual (65% vs. 33%,  $p<0,01$ ). Entre todas as pacientes, questões sobre o risco da transmissão de HIV através da relação sexual (99,6%) e compartilhar agulhas durante uso de drogas (99,2%) foram mais frequentemente respondidas de forma correta, enquanto que questões relacionadas ao risco de HIV através da doação de sangue (57%) foi menor.

CONCLUSÕES: Apesar desta população relatar fácil acesso aos serviços e informações sobre doenças sexualmente transmissíveis /Aids, a maioria relatou entendimento inadequado sobre comportamentos sexuais inseguros, particularmente as mulheres HIV-negativas.

Palavras-chave: Assunção de riscos; Comportamento reprodutivo; Doenças sexualmente transmissíveis; Fatores de risco; Saúde da mulher

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Conflict of interest: None

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## INTRODUCTION

Population surveys investigating sexual behavior and practices were implemented with the emergence of the HIV/AIDS epidemic. These surveys sought to better understand the relationship between sexual behavior and HIV transmission, the leading mode of HIV transmission worldwide.<sup>1-4</sup> These surveys are an important source of information to assess the impact of interventions and HIV prevention policies on reduction of high risk sexual behaviors and drug use among HIV-infected patients, and can provide population data to be used in future HIV vaccine trials.

Heterosexual transmission plays an important role in the spread of the AIDS epidemic in Brazil. Over the past decade, AIDS incidence has evolved more slowly among men who have sex with men (MSM) and injection drug users (IDU), but has increased markedly among the heterosexual population, especially among young people, women, and those with less education and lower socioeconomic status.<sup>5</sup> Women have been affected most intensely in the 25-39 year-old age group, and in contrast to men, still demonstrate increasing incidence in practically all age groups, with the exception of 20 to 29 year-olds, among whom incidence has stabilized in the present decade.<sup>6</sup>

Most women are infected with HIV through high-risk heterosexual contact, possibly due to lack of HIV knowledge, lower perception of risk, drug or alcohol use, or different interpretations of safe sex.<sup>7-10</sup> Relationship dynamics also play a role, in which some women may not insist on condom use because they fear physical abuse or abandonment.<sup>11</sup>

Studies describing sexual and drug risk behaviors can provide information to support design strategies to control the spread of HIV infection, including vaccine trials. The goal of this study was to assess knowledge and sexual risk behaviors among women attending a sexually transmitted infection (STI) clinic in Vitória, Brazil.

## METHODS

Women between 18 and 49 years of age who attended an STI/AIDS clinic from March to December 2006 were invited to participate in the study. Participants were interviewed following provision of informed consent. Enrolled participants underwent a gynecological evaluation, provided a blood sample to determine HIV-status and participated in a 30-minute face-to-face interview using a standardized questionnaire previously validated during a pilot phase. The risk assessment questionnaire included questions on participants' sociodemographic characteristics (age, schooling, marital status, monthly income and health care assistance), exposures and behaviors (currently smoking, alcohol use, illicit drug, injection drug use, number of sexual partners, previous STI, commercial

sex worker), and knowledge, attitudes and strategies used to prevent STI and HIV. The Ethical Committee in Research of the Federal University of Espírito Santo, Brazil approved this study.

Standard descriptive statistical analyses were performed, including frequency distributions for categorical data and calculation of medians and interquartile ranges for continuous variables. Prevalence was calculated to reflect the frequency of HIV infection, with corresponding 95% confidence intervals (CI). Bivariate associations of correlate factors and HIV infection were tested using chi square and t-tests as appropriate.

## RESULTS

A total of 284 women were approached, of which 276 (97%) consented to be interviewed; 109 (39.5%) were HIV-infected and 167 (60.5%) HIV-negative. Median age was 31 years (interquartile range (IQR) 24-36) and 69% of women were between 18 and 34 years of age. Eighty percent received a maximum of three Brazilian monthly minimum wages (US\$180 each during study time) and income did not differ between HIV-positive and HIV-negative women (83% vs 78%,  $p=0.44$ ).

Women reported free access to information about STI (87%) and AIDS (90%) but information about sexuality was less common (55%) (Table 1). HIV-infected women had less access to information about sexual health (39% vs. 65%,  $p<0.001$ ) and about STI (80% vs. 92%,  $p=0.003$ ) but not regarding information about AIDS (85% vs. 92%,  $p=0.07$ ) when compared to HIV-negative women. Both groups reported good access to Pap smear screening (84% vs. 81%,  $p=0.37$ ). Women infected with HIV reported history of a previous pregnancy (93% vs. 73%,  $p<0.001$ ) and current pregnancy (9% vs. 1%,  $p=0.001$ ) more frequently than HIV-negative women. Presence of STI symptoms was similar between HIV-positive and negatives ( $p=0.10$ ).

Regarding risk behaviors, 11% reported frequent alcohol use, 22% illicit drug use and 2% injection drug abuse. There were no differences between HIV-positives and negatives regarding alcohol abuse ( $p=0.11$ ), drug abuse (0.90), being a commercial sex worker (0.76), anal sex ( $p=0.32$ ) or previous homosexual experience ( $p=0.71$ ) (Table 2). HIV-positive women reported condom use more frequently (always/almost always) compared to HIV-negative women (83% vs. 59%,  $p<0.001$ ).

Domestic violence was frequently reported by women (52%). Alcohol abuse (42%), illicit drug use (27%) and psychiatric disturbances (25%) were cited as the most common triggers. Sexual violence was reported

**TABLE 1:** Clinical characteristics among women attending an STD clinic in Vitória, Brazil, 2006 (N=276)

<b>Risk behaviors</b>	<b>Total (N= 276) N (%)</b>	<b>HIV-positive (N= 109) N (%)</b>	<b>HIV-negative (N= 167) N (%)</b>
Access to information about sexuality	151 (55)	42 (39)	109(65)
Access to information about STI	241 (87)	87(80)	154(92)
Access to information about AIDS	247 (90)	93 (85)	154 (92)
Pap smear in the last two years	227 (82)	92 (84)	135 (81)
Pregnancy	223 (81)	101 (93)	122 (73)
<b>Pregnancy outcome**</b>			
Delivery	207 (75)	94 (86)	113 (68)
Miscarriage	57 (21)	30 (28)	27 (16)
Abortion	40 (15)	14 (13)	26 (16)
STI symptoms	63 (23)	20 (19)	43 (26)
Pelvic pain	9 (3)	4 (4)	5 (3)
Genital bleeding	77 (28)	25 (23)	52 (31)
<b>Vaginal discharge</b>			
Cystitis	17 (6)	9 (8)	8 (5)
Genital ulcer	9 (3)	4 (4)	5 (3)

\*\*Results are not 100% because each woman could have more than one pregnancy

by 29% of women, occurring most frequently in childhood (32%), and the perpetrator was most commonly a neighbor (53%) or family member (15%) (Table 3).

Regarding condom use, HIV-infected women were more in agreement with the statement “asking your partner to use a condom shows lack of trust” compared to HIV-negatives (31% vs. 5%,  $p=0.02$ ) (Table 4). HIV-infected women were more likely to

have used a condom at last intercourse than HIV-negatives (65% vs. 33%,  $p<0.01$ ). Most participants knew that HIV transmission can occur through sexual intercourse (99%), sharing needles among injection drug users (IDU) (99%) and that blood transfusions are safe (94%). Only 57% correctly answered that blood donation is not a risk factor for HIV transmission. Overall, 23% of women reported not having

**TABLE 2:** Sexual and behavioral characteristics reported by women attending an STD clinic in Vitória, Brazil, 2006

<b>Risk behaviors</b>	<b>Total (N= 276) N (%)</b>	<b>HIV-positive (N= 109) N (%)</b>	<b>HIV-negative (N= 167) N (%)</b>
Current tobacco use	64 (23)	26 (24)	38 (23)
Regular alcohol abuse*	31 (11)	8 (7)	23 (14)
Illicit drug use (no injection)	61 (22)	28 (26)	33 (20)
Injection drug use	6 (2)	3 (3)	3 (2)
Previous homosexual relationship	29 (11)	11 (10)	18 (11)
Anal sex	143 (52)	52 (48)	91 (55)
<b>Frequency of sexual intercourse per week</b>			
0-3	187 (68)	74 (68)	113 (68)
4-6	32 (12)	16 (15)	16 (10)
More than 6	57 (21)	19 (17)	38 (23)
Condom use	189 (69)	90 (83)	99 (59)
<b>Always/almost always</b>			
Rare/Never	87 (32)	19 (17)	68 (41)
Contraception	234 (85)	92 (84)	142 (86)
Previous STD	152 (55)	45 (41)	107 (64)
Commercial sex workers	56 (20)	21 (19)	35 (21)

\*Three doses at least three times per week.

**TABLE 3:** Domestic and sexual violence reported by women attending an STD clinic in Vitória, Brazil, 2006

Violence	N (%) (N= 276)	HIV serological status	
		Positive (N= 109)	Negative (N= 167)
History of domestic violence related to:			
Alcohol	115 (41.6)	43 (39.4)	72 (43.1)
Illicit drugs	75 (27.2)	29 (26.6)	46 (27.5)
Psychiatric disturbances	70 (25.3)	26 (23.8)	44 (26.3)
Fights between couple	48 (17.4)	17 (15.6)	31 (18.5)
Fights among children	10 (3.6)	4 (3.6)	6 (3.6)
Previous rape	79 (28.6)	41 (37.6)	38 (22.7)
Age at time of rape (n=79)			
≤14 years	25 (31.6)	17 (41.4)	8 (21.0)
15-19 years	21 (26.5)	9 (21.9)	12 (31.5)
20 a 24 years	14 (17.7)	5 (12.1)	9 (23.6)
≥25 years	19 (24.0)	10 (24.3)	9 (23.6)
Rape happened more than once	32 (40.5)	17(41.4)	15 (39.5)
Who raped you? (n=79)			
Adult from family	10 (12.6)	4 (9.7)	6 (15.7)
Young person from family	2 (2.5)	1 (2.4)	1 (2.6)
Neighbor	42 (53.1)	20 (48.8)	22 (57.9)
Unknown person	22 (27.8)	13 (31.7)	9 (23.7)
Several people	3 (3.8)	3 (7.3)	0 (0.0)

fears of getting HIV prior to this interview (48% in HIV group vs. 7% in not infected women,  $p < 0.01$ ).

## DISCUSSION

This study sought to investigate knowledge,

attitude, practice and behavior among women attending an STI clinic in Vitória, Brazil, a region with estimated HIV prevalence of 0.4% among women. These women reported good access to information regarding HIV transmission, but increased knowledge did

**TABLE 4:** Perceptions Related to Condom Use and HIV transmission by HIV status among women attending a STD clinic in Vitória, Brazil (N = 276)

Perceptions Related to Condom Use	N (%)	HIV serological status		
		Positive	Negative	P value
Regarding male condom, you think:				
It is not easy asking the partner to use condom	N (%) 117(42.4)	N (%) 41 (37.6)	N (%) 76 (45.5)	0.246
Asking partner to use condom shows lack of trust	104 (37.7)	34 (31.2)	70 (4.9)	0.357
Asking partner to use condom is "funny"	47 (17.0)	18 (16.5)	29 (17.3)	0.370
Asking partner to use condom disturbs pleasure	92 (33.3)	35 (32.1)	57 (34.1)	
Reported always using condoms	126 (45,6)	71(65.1)	55 (32,9)	0.000
Wanted to use a condom with partner who did not want to use a condom	196 (71.0)	74 (67.9)	122 (73.0)	0.416
When partner did not want to use a condom, what happened at most recent sexual encounter (n=196):				
Used a condom	35 (17.8)	15 (20.2)	20 (16.4)	0.644
Had sex without condom	81 (41.3)	32(43.2)	49 (40.2)	
Did not have sex	77 (39.3)	26 (35.1)	51(41.8)	
Had sex without intercourse	3 (1.5)	1 (1.4)	2 (1.6)	

not translate into a reduction of high risk behaviors in this population.

Previous pregnancy was a frequent event in this study even in the HIV-infected group. Numerous behavioral and contextual factors interact in a complex way to determine intended and unintended reproductive outcomes among women living with HIV. Age, marital, educational, and socioeconomic status, cultural and religious beliefs, sexual behavior as well as family size and losses, and access to family planning services are documented predictors of pregnancy.<sup>12, 13</sup>

Though the use of tobacco, alcohol, marijuana, psychotropic pills, crack, cocaine and injection drugs were investigated, the face-to-face interview may have underestimated these risk behaviors because patients may feel the need to provide socially acceptable responses. Regardless, our results, that reported 22% of illicit drug use, are in agreement with the Brazilian National Survey of Knowledge, Attitudes, and Practices where 21% of women reported previous drug use, higher rates than reported by the population of the Brazilian National Survey where 7.4% of women reported any illicit drug use, with the highest rates of drug use among 25 to 34 year-olds.<sup>14, 15</sup> It was expected that STI clinic populations would have a higher rate of drug use than the general population.<sup>16</sup>

Reported condom use (69%) and previous STI (55%) were frequent in our study population, and condom use among HIV-infected women was even higher. It is possible that HIV-infected patients receive more in-depth counseling regarding condom use than HIV-negatives. Although 90% of the Brazilian population between the ages of 15-54 is sexually active, the use of a condom at last sexual encounter is reported by just over a third of the Brazilian population.<sup>14</sup> Over 90% of the Brazilian population cites sexual relations as a form of HIV transmission, and the use of condoms as a way of preventing transmission risk, suggesting that knowledge and perception of risk do not necessarily translate into effective changes in behavior.<sup>14, 17</sup> Prevention campaigns should encourage condom use and disparage complacency about risks of spreading HIV through heterosexual intercourse because condoms are represented as a personal tool in the responsibility for safe sex. This approach needs to consider gender power relations which construct and constrain choices and decisions. It is also important to discuss the challenges of negotiating condom use in sexual encounters.<sup>18</sup>

Social regulation of sexuality in terms of sexual health depends on its national, political, and cultural context. It is important to determine the place and status of sexuality in public health services.<sup>19</sup> Understanding behavior patterns of relatively small specific segments of the population, which show

increased vulnerability and interconnectivity may contribute substantially to the transmission dynamics of the HIV epidemic, resulting in greater dissemination into the general population.<sup>20, 21</sup> Because of this phenomenon, monitoring risk behaviors of specific at-risk populations has been the objective of various surveys carried out locally, and countrywide.

Women in this study frequently reported domestic and sexual violence. The effects of violence to the physical and mental health of women have been evidenced in other studies in Brazil and other countries.<sup>22-25</sup> It is important to determine what the objectives of the inquiry approach regarding violence are in health facilities and how this information is considered in treatment of the patient. Victims of violence, and those living in fear of violence, need assistance and must be considered in health care work.

Independently of HIV status, participant comprehension of the primary routes of HIV transmission was very high in this population, as was perception of susceptibility to HIV infection. Despite this knowledge, HIV-positive and HIV-negative women found it difficult to ask their partners to use a condom. Interestingly, most patients recognized that receiving a blood transfusion did not increase risk of HIV transmission; however, many believed that donating blood does increase risk. These data are in agreement with the Brazilian army survey.<sup>26</sup>

These results point out to the importance of providing HIV and risk behavior counseling and education to women attending STI clinics. It is important to consider social, cultural and potential institutional problems for the target population because these issues can complicate the implementation of educational programs focused on sexual and drug behaviors.<sup>26</sup> A study performed by the United Nations showed education concerning sexual health and HIV/AIDS promotes healthier sexual behavior without increasing sexual activity rate, and protects against other STI.<sup>27</sup>

## CONCLUSIONS

Women need to learn to identify a high risk situation, understand their personal vulnerability, be aware of available choices for protection, and decide which alternative better suits their personal beliefs after weighing the possibilities.<sup>28</sup> It is important to emphasize that implementation of STI and AIDS education alone will not be enough to control transmission if these women do not have access to assistance and emotional support. Once this population receives assistance from the public health system it is necessary to establish strategies that include sexual partners and health professionals participation if success in HIV control and transmission is to be achieved. □

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