RESEARCH

VULNERABILITY TO HIV IN ADOLESCENTS: A RETROSPECTIVE STUDY AT A COUNSELING AND TESTING CENTER

A VULNERABILIDADE AO HIV EM ADOLESCENTES: ESTUDO RETROSPECTIVO EM UM CENTRO DE TESTAGEM E ACONSELHAMENTO

VULNERABILIDAD AL VIH EN LOS ADOLESCENTES: ESTUDIO RETROSPECTIVO EN UN CENTRO DE CONSEJERÍA Y PRUEBAS

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ABSTRACT

The present study aimed to identify the vulnerability profile of HIV-positive adolescents at a Counseling and Testing Center (CTA) and its relationship with the individuals' level of education. It is a retrospective cross-sectional study carried out from 2002 to 2010 at a CTA in Southern Brazil. Sample consisted of 100 HIV-positive subjects of both sexes, aged between 13 and 19 years. The average age was 17.7 years; female subjects made up 65 % of the sample and had the highest educational attainment (8 to 11 years of schooling). There were no significant differences between the categorical variables that comprise vulnerability and sex. Vulnerability profile highlighted feminization, an association between low level of education and the following variables: "reason not to use condoms with a stable partner"; "drug use in the last year"; "sexually transmitted diseases in the last year"; and sexual intercourse as a " type of exposure". The researchers emphasize the need to implement educational programs for the prevention of HIV/AIDS in adolescents.
Keywords: HIV; Adolescent; Vulnerability.

RESUMO

O presente estudo objetivou identificar o perfil de vulnerabilidade e a sua relação com a escolaridade de adolescentes com sorologia positiva para o vírus da imunodeficiência humana (HIV) de um Centro de Testagem e Aconselhamento (CTA). O delineamento caracterizou-se como transversal retrospectivo. A amostra foi de 100 indivíduos de ambos os sexos, entre 13 e 19 anos de idade, com sorologia positiva para HIV, no período de 2002 a 2010, em um CTA da região Sul do Brasil. A média de idade foi de 17,7 anos, com sexo feminino perfazendo 65% da amostra e com prevalência em escolaridade (oito a 11 anos de estudo). Não houve diferença significativa entre as variáveis categóricas que compõem vulnerabilidade e sexo. O perfil de vulnerabilidade evidenciado foi feminização, associação de baixa escolaridade com "motivo de não usar preservativo com parceiro fixo", "uso de drogas no último ano", "doença sexualmente transmissível no último ano" e relação sexual como "tipo de exposição". Salienta-se a necessidade de desenvolvimento de intervenções educativas para a prevenção do HIV/AIDS em adolescentes.
Palavras-chave: *HIV; Adolescente; Vulnerabilidade.*

RESUMEN

El presente estudio tuvo como objetivo identificar la relación entre el perfil de vulnerabilidad para el virus de la inmunodeficiencia humana (VIH) y el nivel de instrucción de adolescentes seropositivos de un Centro de Consejería y Pruebas (CTA). El diseño se caracteriza por ser transversal retrospectivo. La muestra consistió en 100 individuos de ambos sexos, entre 13 y 19 años de edad, con serología VIH positiva, en el período 2002-2010, a un CTA del sur de Brasil. La edad promedio fue de 17,7 años, con las mujeres que componen el 65% de la muestra y su prevalencia en la educación (8-11 años de escolaridad). No hay diferencias significativas entre las variables categóricas que componen vulnerabilidad y sexo. El perfil de vulnerabilidad evidenció la feminización, la asociación entre bajo nivel educativo y "razón para no usar preservativos con una pareja estable ", "consumo de drogas en el último año ", " enfermedad de transmisión sexual en el último año" y la relación sexual como "una especie de la exposición". Hacemos hincapié en la necesidad de llevar a cabo medidas educativas para la prevención del VIH / SIDA en adolescentes.
Palabras clave: *VIH, Adolescente, Vulnerabilidad.*

INTRODUCTION

Adolescents are currently exposed to several physical and psychosocial risks. HIV infection exemplifies such vulnerability, especially because HIV-positive people may become targets of stigma and discrimination.[1, 2]

The HIV epidemic in Brazil went through three stages associated to three different concepts: first the concept of "risk group" that comprised highly educated homosexual men; then the concept of "risk behaviour", meaning a large number of new cases amongst people who injected drugs and widespread infection of heterosexual individuals and finally the current concept of "vulnerability" characterized by an increase in the number of cases among women with lower level of education and the internalization of AIDS.[3]

Brazilian demographic and epidemiological inequalities generate sub- epidemics. From 1980 to June 2012, a total of 656 701 new cases of people living with AIDS were reported. In Latin America, Brazil holds sixth-place in the prevalence of HIV/AIDS per 1,000 inhabitants. In southern Brazil HIV incidence rate increased from 27.1 to 30.9. The 13 to 19 age group is the only one in which the number of cases is higher among women.[4, 5]

Data regarding young people suggest that, although they are well informed about AIDS and the prevention of other sexually transmitted diseases, HIV cases are still increasing[6], pointing out a juvenilization tendency of the epidemic, i.e. an increase in the distribution of cases especially among female adolescents.

Counselling and Testing Centres (CTA) have been implemented in Brazil since 1988. They offer, among other activities, counselling and serological tests for HIV, providing an early epidemiological profile of infected individuals and assisting political and social interventions for the control and treatment of the disease.[7, 8]

Knowledge is of utmost importance to understand the concept of vulnerability in adolescents. It is essential to study their beliefs, attitudes and information about the disease, as well as their behaviour towards risk exposures.

The literature emphasizes the importance of information about the prevention of sexually transmitted infections (STIs) and AIDS in adolescents. Nevertheless, data about the vulnerability level of HIV-positive adolescents and its association with educational level, especially among those that seek a CTA, is scarce.[9,10]

Taking into consideration the above situation, this study aimed at identifying the vulnerability profile of HIV-positive adolescents at a CTA in Southern Brazil. Its relevance lays in the need to identify issues related to vulnerability to HIV and to assess the risk that a given population – especially female adolescents – is exposed to.

METHODOLOGY

This is a retrospective cross-sectional study. The project was approved by the Health Research Ethics Committee of the School of Public Health (643/11).

Data was collected through consecutive processing of 100 forms about teenagers aged between 13 and 19 years of both sexes, who were tested HIV-positive at the CTA from January 2002 to December 2010.

During this period 1,130 HIV screening tests were carried out; 130 were positive; 30 were excluded because forms were incomplete.

Data collection on this historical control group was based on information from the database of the Information System of the Centre for Counselling and Testing (SICTA). Data collected provided no personal information about the subjects, given that anonymity is a condition to use the CTAs services.

Data were entered in Microsoft Excel and imported to SPSS software program (18.0) ($p < 0.05$), in which they were tabulated and analysed by absolute and relative frequencies, mean and standard deviation frequency.

Pearson's chi-square test was used in associations between categorical variables. To complement this test, analysis of adjusted residuals was applied in case of statistical significance.

RESULTS AND DISCUSSION

Female research subjects accounted for 65% of the sample; the mean age was 17.6 years with a ± 1.5 standard deviation (SD). Such data reflect a national tendency: according to the Brazilian Department of Health the 13 to 19 age group is the one that has the highest number of cases among women.[5]

Women´s social vulnerability to HIV/AIDS may be explained by the interplay of different factors: low level of education, exposure to the virus through heterosexual contact in stable relationships, domestic violence, expectations regarding motherhood, and poverty.[11, 12]

Health care, often denied to adolescents who are not accompanied by their "guardians", is not consistent with the Statute of the Child and Adolescent and it does not recognize the legitimacy of the teenager. These aspects turn into significant vulnerability factors, as they hinder counselling and safe sex guidance, as well as prevent the individuals' access to adequate resources.[12]

The present study data revealed that HIV was more frequent among female subjects, possibly due to a higher rate of consultations which confirms the findings of a survey that demonstrated the high proportion of female visits to a STI/HIV/AIDS referral centre.[13]

Although the feminization of AIDS is a tendency, men's health must be considered in the context of public health care; historically men consider themselves "invulnerable", and

reject the idea of being ill, which may directly influence the spread of STIs.[14]

Table 1 - Socio-demographic data according to sex – CTA, Southern Brazil – between 2002 and 2010 (n=100)

Variable	Male (n=35)	Female (n=65)	p-value
	No %	No %	
Race/skin colour			
white	7 20	24 36,4	0,134
black	1 2,9	6 9,2	
Brown	4 11,4	4 6,2	
N/K	23 65,7	31 47,7	
Schooling			
None	2 5,7	1 1,5	0,001
1 to 3 yr.	15 42,9*	7 10,8	
4 to 7 yr.	12 34,2*	25 38,5	
8 to 11 yr.	3 8,6	28 43,1*	
> 12 yr.	1 2,9	–	
N/K	2 5,7	4 6,2	
Marital status			
Married	11 31,4	29 44,6	0,307
Single	24 68,6	35 53,8	
Separated	–	1 1,5	

* Significant association of the adjusted residuals test at 5% significance.
Source: CTA (SiCTA) Database - 2002 to 2010.
The dash (–) represents value of zero (0).

Table 2 - Characterization of the sample according to gender and vulnerability profile: CT, Southern Brazil – between 2002 and 2010. (n=100)

Variable	Male (n=35)	Female (n=65)	p-value
	No %	No %	
Drug use in the last year			
yes	5 14,3	12 18,5	0,802
no	30 85,7	53 81,5	
Sexually transmitted diseases in the last year			
yes	7 20	6 9,2	0,210
no	28 80	59 90,8	
Reason for not using condoms with partners			
Last/current relationship			
Partner does not accept it	1 2,9	6 9,2	0,139
Believed partner had no HIV	3 8,6	1 1,5	
Dislikes it	2 5,7	8 12,3	
Trusts in partner	4 11,4	11 16,9	
N/A	19 54,3	35 53,8	
Other	6 17,1	4 6,2	
Type of exposure			
Sexual intercourse	31 88,6	60 92,3	0,065
Vertical transmission	–	4 6,2	
Syringe and needle sharing practices	2 5,7	–	
Other	2 5,7	1 1,5	

* Category "not applicable" is considered only to stable partners and not to casual ones.
Source: CTA (SiCTA) database - 2002 to 2010.
The dash (–) represents value of zero (0).

Table 1 classifies samples according to socio-demographic profile. It shows a significant difference in relation to "schooling" (p = 0.001) and prevalence of four to seven years of study, especially for male subjects.

Between 2002 and 2007 the rate of sexual risk behaviour increased over 50% among young people with incomplete primary education. Such data corroborate the study findings and suggest that low educational level may increase the vulnerability of these adolescents when exposed to risk situations.[15]

In the United States interventions in the school curriculum and changes in the school environment have reduced the incidence of unprotected sex and increased the use of condoms among young people. According to this study, practices based on education and HIV prevention are necessary considering the current gap observed in the education of that population group.[16]

There was no significant difference between vulnerability profile and gender (Table 2).

The concept of vulnerability to AIDS is a complex one. It encompasses several dimensions that determine individuals or groups of higher exposure, each with particularities and specificities that vary according to the population considered.

Although the literature relates drug use, STIs and non-use of condoms as indicators of exposure risk and vulnerability associated with HIV, this study showed no significant difference in relation to gender.[17-20]

The association between the independent variable "schooling" and other variables that make up the vulnerability profile shows significant correlation in all associations (p = 0.001) from the adjusted residuals test (Table 3).

The variable "reason for not using condoms with a stable partner" presented low level of education in the following categorical variables: "partner does not accept it" (66.7% in none); "believed partner had no HIV" (33.3% in none), "dislikes it" (31.8% 1 to 3 years) and "trusts in partner" (29.7% 4 to 7 years).

Considering the use of condoms, data from a previous research demonstrated that over 40% of women, regardless the type of relationship they were in (stable or not) had unprotected sex and low level of education. This fact may suggest low bargaining power in relation to safe sex, causing difficulties in negotiating and/or accepting decisions, especially among female adolescents.[21]

Table 3 - Association between vulnerability profile and level of education for both sexes – CTA Southern Brazil between 2002 and 2010 (n=100)

Variable	Schooling				p-value
	None	1-3 yr.	4-7 yr.	> 8 yr.	
	No. %	No. %	No. %	No. %	
Reason for not using condoms with stable partner					
Partner does not accept it	6 66,7*	1 4,5	–	–	0,001
Believed partner had no HIV	3 33,3*	1 4,5	–	–	
Dislikes it	–	7 31,8*	3 8,1	–	
Trusts in partner	–	4 18,2	11 29,7*	–	
Other	–	9 40,9	23 62,2	32 100	
Drug use in the last year					
yes	9 100*	8 36,4*	–	–	0,001
no	–	14 63,6	37 100*	32 100	
Sexually transmitted diseases in the last year					
yes	9 100*	4 18,2	–	–	0,001
no	–	18 81,8	37 100*	32 100	
Type of exposure					
Sexual intercourse	9 100	22 100	37 100*	23 74,2	0,001
Vertical transmission	–	–	–	4 12,9*	
Needle and syringe sharing practices	–	–	–	2 6,5*	
Other	–	–	–	3 8,1	

* Significant association of the adjusted residuals test at 5% significance.
Source: CTA (SiCTA) database – 2002 to 2010.
The dash (-) represents value of zero (0).

Unprotected sex among adolescents is not specific to the Brazilian context. In the United States, 59.5% of young people that are HIV-positive are unaware of their status.[22] A multicentric study of HIV-positive adolescents demonstrates that 21% of the participants did not disclose their HIV status to his /her partner and had "unprotected" sex, i.e. besides the possibility of recontamination and contamination by other STIs, the teenager may become a potential multiplier of the virus.[23]

Adolescents who appeared in the variables "use of drugs in the last year" and "sexually transmitted disease in the last year" had low level of education (none or one to three years). In the variable "type of exposure", sexual intercourse was the most common, also associated with low educational attainment (four to seven years).

A previous study of adolescents demonstrated that 33.7% of those who had unprotected sex reported having had it under the influence of drugs, whereas 37.9% of the respondents believed that they would not be infected with HIV.[24]

Another study whose sample consisted of low-income adolescents with low level of education, 75.4% of the subjects had their first sexual intercourse before the age of 16. Those sexually active before 12 were at an even higher risk of HIV-infection.[25] Our findings are in line with these results. Considering the age group studied (13 to 19 years old), the researchers inferred that low level of education influence the decision making of these individuals, increasing their vulnerability in risk situations.

Such aspects, along with characteristics inherent to adolescent stages of development, may influence the health-disease process, resulting in changes in the patterns of vulnerability. An early approach in the school environment is necessary to mitigate adolescents' susceptibility to HIV-infection.

A limitation of the current study is the small sample size, as well as the fact that data were collected in a single CTA in Southern Brazil, which may compromise the external validity of the research.

CONCLUSION

Given the proposed objectives, the present study provided evidence to the feminization of HIV-infection in the age group 13-19 years, and the higher rate of educated females (eight to eleven years of schooling). Although female subjects prevailed, there was no significant difference regarding the profile of vulnerability and gender.

The research identified a significant association between low educational level and vulnerability, which suggests that education directly influences the judgment power and/or decision-making of adolescents exposed to risk situations. Such population may be subject to preventable diseases and become a potential multiplier of HIV infection.

The relevance of the notion of vulnerability lies in the recognition that HIV infection does not depend only on information and individual attitudes, but on a series of structural factors that affect individuals, regardless of their will. Such aspect justifies a special focus on the development or adaptation of specific preventive methodologies addressed to this population.

It is necessary to develop creative educational campaigns that consider the bio psychosocial complexity involved in the vulnerability to HIV infection in adolescence. Such campaigns, based on solid and objective training, especially in the school environment, could help to reduce the number of cases and diminish the prejudice attached to the disease.

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