

## TIME LAPSED BETWEEN SEXUAL AGGRESSION AND ARRIVAL AT THE BRAZILIAN HEALTH SERVICE

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### Abstract

**Background:** We aimed to describe the social, demographic and medical characteristics of victims of sexual violence and their association with the lapsed time between the aggression and the search for medical attention, and to identify the possible reasons for delay in access to hospital. **Methods:** we reviewed the records of 439 female cases of sexual violence, treated through the medical services in Sao Bernardo do Campo, Brazil, during an eight-year period, from 2000 to 2007. **Results:** of the 439 patients, 374 arrived at the hospital within 72 hours after the aggression. The average age was 24.5 years; 45.1% completed or were finishing high school. The most common form of sexual aggression was vaginal penetration in 43.9% of the cases, followed by multiple forms of penetration such as vaginal plus anal, or vaginal plus oral in 31.4% of the patients. Patients who did not suffer extra-genital injury and those who did not notify the authorities were significantly more likely to present to care after 72 hours: OR = 2.58 (95%CI: 1.04; 6.38) and OR = 2.74 (95%CI: 1.58; 4.78) respectively. Patients who had prior knowledge of their aggressor were significantly less likely to present after 72 hours (OR = 0.51; 95%CI: 0.28; 0.96). **Conclusions:** patients who suffered from extra-genital trauma and those who notified the authorities were more likely to seek care within 72 hours whereas patients who knew their aggressor were more likely to suffer the consequences of seeking care later than 72 hours. Public policies and efforts to educate women about the seriousness of this crime and encourage them to notify the authorities and seek care immediately following the aggression, may reduce the complications involving such crime.

**Key words:** public health; women health; sexual violence; prevention and control; HIV infection.

### INTRODUCTION

The World Health Organization (WHO) defines violence in women as "any act of gender-based violence that results in serious physical, sexual or psycho-emotional impairment to women, occurring in public or private life". The literature indicates that it is an universal crime. Also, it is commonly underreported and rarely discussed, although it is a serious public health problem due to its high morbidity<sup>1</sup>.

According to the World Health Organizations report in 2002, 20% of women all over the world were sexually abused at least once in their lives, and the prevalence of this type of aggression ranges from 13 to 28%<sup>1,2</sup>. In Brazil, these statistics remain unknown due the lack of studies regarding

this matter, but the minimum incidence rate is estimated at 7% in the general population<sup>3</sup>.

Sexual violence can lead to unwanted pregnancies and sexually transmitted diseases (STD), which include the Human Immunodeficiency Virus (HIV), other physical injuries and the impact on the psychological status of women<sup>3</sup>. Health professionals are in a unique position to make an early diagnosis and to intervene to prevent problems resulting from such violence.

According to the technical standard of the Ministry of Health, in the final version published in 2005<sup>3</sup>, efforts for the prevention of morbidities resulting from sexual aggression are much more effective if implemented early. The first 72 hours after sexual aggression are critical for the prevention of unwanted pregnancy and STD/HIV,

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**Suggested citation:** Vertamatti, MAF et al. Time lapsed between sexual aggression and arrival at the brazilian health service; Journal of Human Growth and Development 2013; 23(1): 46-51  
Manuscript submitted Apr 06 2012, accepted for publication Dec 10 2012.

this last one known by antiretroviral drug treatment as post-exposure prophylaxis<sup>3-7</sup>. The World Health Organization recommends prescribing zidovudine and lamivudine as the preferred regimen, and in Brazil we also prescribe ritonavir and lopinavir<sup>3</sup>. It is understood that sexual aggression is a source of embarrassment to the victim, often resulting in inhibiting them from seeking police and health care assistance. It is therefore important to identify the reasons for delays in accessing health care services to enable health care providers minimize the consequences of these serious crimes.

The literature related to prevention of HIV through the use of antiretroviral drugs is recent and poorly understood. However, there is evidence that such intervention has been successful in preventing HIV transmission in pregnancy and childbirth and in cases of occupational injuries<sup>3</sup>. There have been no reports of seroconversion in any patient where the drugs have been used correctly after sexual aggression<sup>12,17</sup>. There has also been no cases of seroconversion in any of our patients.

In view of the above considerations, the objective is to discuss the difference between women who seek health care within 72 hours and those who did not, pertaining to socialdemographic factors and dimensions of violence.

## METHODS

This is a retrospective descriptive study of 439 women attended at the Program for the Care of Violence and Sexual Abuse in Sao Bernardo do Campo (PAVAS-SBC), State of Sao Paulo (SP), Brazil, from 2000 to 2007. The study was conducted after approval of the Ethics Committee in Research of the Faculdade de Medicina de Santo Andre, Brazil (protocol number 100/2008).

Sao Bernardo do Campo is a Brazilian city in the state of Sao Paulo, in the Metropolitan region of Sao Paulo, Brazil. The total area of Sao Bernardo is 406 km<sup>2</sup> and its population is approximately 781,390 inhabitants (421,918 are females), according to the Brazilian Institute of Geography and Statistics<sup>8</sup>.

Data were obtained from patients' files, which included a questionnaire and a description of the victim's clinical examination. The independent variables were: age, school degree, marital status, pregnancy at the time of the aggression, time of arrival at the hospital, previous use of contraception, previous sexual activity, identity of the aggressor, number of aggressors, type of crime, and presence of a police report and physical trauma at the first examination. The dependent variable was the time between sexual aggression and the arrival at the hospital.

Women were divided into three age groups after calculation of mean and standard deviation using quantitative data: adolescents (10 to 19 years old)<sup>9</sup>, reproductive age (20 to 39 years old)<sup>9</sup>, and

peri or postmenopausal (40 years or older)<sup>10</sup>. The inclusion criterion was all women who suffered from sexual aggression and who agreed to enroll in the study during the period of 1000-2007; the exclusion criteria was male gender and cases of chronic sexual abuse against children.

In order to evaluate normality of the variables we used the Anderson-Darling test. Tests of hypotheses for proportions used were chi-square or Fisher exact test. The odds ratio was calculated by logistic regression. We adopted the level of significance as  $\leq 0.05$ . All variables with a p-value  $\leq 0.20$  in logistic regression or chi-square test or Fisher were included in the hierarchical model. In the final model, we kept all the variables whose association with the time of arrival at health service remained  $\leq 0.05$ , controlling for age. In order to analyze factors such as school degree and marital status, it was assumed that age would be a variable that modified the effect in logistic regression models. We analyzed two models: model A, with the independent variables not controlled by age, and a model B, with variables controlled by age. Findings with p-value  $\leq 0.05$  or 95% confidence intervals (CI) not including 1 were considered statistically significant.

## RESULTS

The total number of patients included in the study was 439. 374 women (85.19%) arrived at the hospital within 72 hours, while 65 (14.81%) arrived after 72 hours of the aggression. The average age was 24.5 years, 44.4% were between 10 and 19 years old and 47.3% were between 20 and 39 years old (table 1). The majority of women (45.1%) were in school or had completed high school. The most frequent event was vaginal coitus (43.9%), while exclusive oral penetration was reported in 8.9% of cases and exclusive anal penetration in 3.6%. Two or more events occurred in 31.4% of the cases. In 11.9% of cases more than one aggressor was involved in the crime (table 1).

As for physical trauma, 14.8% of the victims suffered genital trauma whereas 18.6% suffered extragenital trauma (table 1). The aggressor was known by the victim in 18.4% of cases and 62.4% of women visited a police station to file a complaint (table 1).

Variables which did not have a p value  $\leq 0.20$  in univariate analysis are not presented in table 1: previous sexual activity, contraceptive use and pregnancy on the crime date. Controlling for age in multiple regression analysis (model B) did not alter our findings, there was implying that the high number of young women did not alter results in any variable.

Table 2 presents variable significantly associated with early presentation to hospital care with  $p \leq 0.05$ : extra-genital trauma and filing a police report were significantly associated with

**Table 1:** Distribution of women attended by the PAVAS-SBC according to social, demographic and epidemiologic variables, 2000 to 2007

Variables	Within 72h		After 72h		P
	N	%	n	%	
<b>Age (years)</b>					
10 - 19 years	160	82.05	35	17.95	0.243
20 a 39 years	183	87.98	25	12.02	
above 40 years	31	86.11	5	13.89	
Total	374	85.19	65	14.81	
<b>Age (years) School Degree</b>					
	Average=24.56		Standard deviation=10.07		
Illiterate	7	63.64	4	36.36	0.090
Incomplete 1 <sup>o</sup> degree	108	81.82	24	18.18	
Complete 1 <sup>o</sup> degree	86	87.76	12	12.24	
2 <sup>o</sup> degree (complete or incomplete)	173	87.37	25	12.63	
Total	374	85.19	65	14.81	
<b>Marital status</b>					
Non united	290	84.06	55	15.94	0.199
United	84	89.36	10	10.64	
Total	374	85.19	65	14.81	
<b>Type of Aggression</b>					
Vaginal coitus	163	84.46	30	15.54	0.077
Anal coitus	13	81.25	3	18.75	
Oral coitus	36	92.31	3	7.69	
3 types of coitus	40	83.33	8	16.67	
2 types of coitus	71	78.89	19	21.11	
Other libidinous acts	51	96.23	2	3.77	
Total	374	85.19	65	14.81	
<b>Genital Trauma</b>					
Yes	60	92.31	5	7.69	0.080
No	314	83.96	60	16.04	
Total	374	85.19	65	14.81	
<b>Extra Genital Trauma</b>					
Yes	76	92.68	6	7.32	0.007
No	298	83.71	59	16.29	
Total	374	85.19	65	14.81	
<b>Known Aggressor</b>					
Yes	61	75.31	20	24.69	0.006
No	313	87.43	45	12.57	
Total	374	85.19	65	14.81	
<b>Number of Aggressors</b>					
1	331	85.53	56	14.47	0.108
2	29	90.63	3	9.38	
>2	14	70.00	6	30.00	
Total	374	85.19	65	14.81	
<b>Policial complaint</b>					
Yes	248	90.51	26	9.49	0.000
No	126	76.36	39	23.64	
Total	374	85.19	65	14.81	

\*  $p \leq 0.05$  Chi square or Fisher test.

**Table 2:** Estimation of the logistical multiple regression model (complete\*) to arrival 72 hours after the crime, PAVAS-SBC-2000-2007

Independent variables:	Complete model*			
	Model A <sup>†</sup>		Model B <sup>‡</sup>	
	OR <sup>§</sup> (95% CI <sup>  </sup> )	P	OR <sup>§</sup> (95% CI <sup>  </sup> )	P
<b>Age</b>	–	–	0.98 (0.95; 1.01)	0.387
<b>Non genital trauma</b>				
<b>No</b>	2.6 (1.06; 6.41)	0.036	2.58 (1.04; 6.38)	0.040
<b>Yes</b> (reference)				
<b>Known aggressor</b>				
<b>No</b>				
<b>Yes</b> (reference)	0.52 (0.28; 0.96)	0.036	0.51 (0.28; 0.96)	0.037
<b>Police complaint</b>				
<b>No</b>	2.84 (1.64; 4.92)	0.000	2.74 (1.58; 4.78)	0.000
<b>Yes</b> (reference)				

\* Exclusion of all co-variables, simultaneously,  $p > 5\%$ , on Table 2 in any period.

<sup>†</sup> Model A = no controlled by age.

<sup>‡</sup> Model B = controlled by age.

<sup>§</sup> OR = odds ratio.

<sup>||</sup> CI = confidence interval.

seeking care within 72 hours of the crime. Knowledge of the aggressor was significantly associated with delay in seeking health care.

The software we used was STATA 10.0 for the analysis.

## DISCUSSION

The fight against sexual violence requires integrated actions of all government sectors including education, justice, social action, civil society and health. This fight includes protecting victims from unwanted pregnancies as well as sexually transmitted diseases and psychological damage<sup>11,12</sup>.

The literature indicates that women targeted by the aggressors were usually very young - 50 to 60% were younger than 19 years<sup>12,14,15</sup>. This may be related to both the physical attraction to younger woman as well as their vulnerability to aggression because of their immaturity<sup>12,7</sup>. Our findings are consistent with previous reports. We found that the average age of victims was 24.5 years, with 44.4% being 10 to 19 years old and 47.3% being 20 to 39 years

old. However, our analysis revealed that the victim's age does not contribute to early or delayed seeking of health care services.

HIV infection is serious concern for women subjected to sexual aggression. Previous investigations showed that the risk of infection in these cases ranges between 0.8% and 2.7%<sup>3</sup>, a risk comparable to other forms of sexual exposure, heterosexual single piercing or cutting accidents. The risk of infection depends on several conditions, including type of sexual exposure (anal, vaginal, oral), number of aggressors, susceptibility of women, trauma or genital lesions associated with the aggression, viral status of the aggressor, and, most important, the time elapsed between the contact with the infected person and the onset of prophylactic medications<sup>3,16,17</sup>.

There is consensus in the literature that anti-HIV prophylaxis must be initiated as early as possible following the crime<sup>14-18</sup>, because the virus reaches the bloodstream and is able to infect macrophages after about 48 hours of penetration through the failure of the skin and mucosal barriers. This implies that 72 hours is an acceptable limit within which the antiretroviral drugs could exert a protective effect<sup>19,20</sup>.

Previous reports from studies in populations similar to ours found that between 7% and 33% of patients presented to the health services after the first three days<sup>12,14</sup>, however, none of these studies examined the variables which contributed to the delay. The lack of important technical details discussed before may have contributed to 14.8% of women in our study arrive after 72 hours, which avoided them from receiving appropriate care, such as antiretroviral drugs and contraception.

We found that one of the factors that cause delay in seeking health services is the victim's knowledge of the aggressor. Other factors which may contribute to the delay include embarrassment and humiliation experienced by the victim as well as fear of retaliation by an aggressor who may easily find the woman.

This fear may outweigh a woman's fear of pregnancy or infection. Another type of sexual aggression which is unlikely to be recognized or reported is "marital rape" which happens when relationships end in supposedly consensual aggression<sup>21</sup>. The literature indicates that in cases where the aggressor is known, around 70% of the time the main aggressors were partners and family members<sup>12,22</sup>. In studies based on emergency visits including visits to emergency rooms or reference services like our study, the proportions of known aggressors range from 10-20%<sup>23,24</sup> which is consistent with our finding of 18.4%.

Intimate partner violence (IPV) remains a problem of public health significance associated with bruises, wounds, and severe burns at individual level<sup>25</sup>.

The experience of violence reinforces gendered power inequalities that impact on women's vulnerability, such that women who have less power in their sexual relationship are at higher risk of any kind of violence and its consequences<sup>26</sup>.

We found that the presence of non-genital trauma and reporting the crime to the police were

significantly associated with early arrival of the patient to health care services. This finding confirms that professionals in police stations and in emergency rooms refer post-sexual aggression victims as soon as possible to the reference health services, which demonstrates an integrated and well coordinated municipal network to assist the victims of crime.

An unexpected finding from our study was that genital trauma, in similar proportions to the extra-genital trauma, did not influence the time of arrival of women. Most injuries caused by sexual aggression were of small gravity, such as excoriation, bruises light, superficial hematomas and ecchymosis. However, these genital injuries did not contribute to early reporting to police or health care services. It seems that embarrassment and social taboos make it difficult for victims to display injuries to their genital organs, such as lacerations and vulvar or vaginal bleeding. Thus, diminishing family blame would be more advantageous in cases of severe abuse<sup>27-31</sup>.

In conclusion, we found that most victims of sexual aggression sought medical care within 72 hours after the crime. Most victims were young with an average age of 24.5 years; most victims were in school or had already completed high school. Vaginal penetration was the most commonly committed crime, followed by a combination of vaginal penetration and indecent anal or oral aggression. Considering that 72 hours after sexual abuse is the maximum time recommended for effective prophylaxis against STD / AIDS and unwanted pregnancies, two factors were shown to be protective for the victims: the presence of non-genital trauma and filing a police complaint. The victim's knowledge of the aggressor also resulted in a delay in seeking health care services. Therefore, public policies promoting integration between the different sectors involved in the sexual violence issue can result in a positive impact in reducing and controlling the complications of this crime.

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