

## Sex with Animals (SWA): Behavioral Characteristics and Possible Association with Penile Cancer. A Multicenter Study

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### ABSTRACT

**Introduction.** Zoophilia has been known for a long time but, underreported in the medical literature, is likely a risk factor for human urological diseases.

**Aim.** To investigate the behavioral characteristics of sex with animals (SWA) and its associations with penile cancer (PC) in a case-control study.

**Methods.** A questionnaire about personal and sexual habits was completed in interviews of 118 PC patients and 374 controls (healthy men) recruited between 2009 and 2010 from 16 urology and oncology centers.

**Main Outcome Measures.** SWA rates, geographic distribution, duration, frequency, animals involved, and behavioral habits were investigated and used to estimate the odds of SWA as a PC risk factor.

**Results.** SWA was reported by 171 (34.8%) subjects, 44.9% of PC patients and 31.6% of controls ( $P < 0.008$ ). The mean ages at first and last SWA episode were 13.5 years (standard deviation [SD] 4.4 years) and 17.1 years (SD 5.3 years), respectively. Subjects who reported SWA also reported more venereal diseases ( $P < 0.001$ ) and sex with prostitutes ( $P < 0.001$ ), and were more likely to have had more than 10 lifetime sexual partners ( $P < 0.001$ ) than those who did not report SWA. SWA with a group of men was reported by 29.8% of subjects and SWA alone was reported by 70.2%. Several animals were used by 62% of subjects, and 38% always used the same animal. The frequency of SWA included single (14%), weekly or more (39.5%), and monthly episodes (15%). Univariate analysis identified phimosis, penile premalignancies, smoking, nonwhite race, sex with prostitutes, and SWA as PC risk factors. Phimosis, premalignant lesions, smoking, and SWA remained as risk factors in multivariate analysis. However, SWA did not impact the clinicopathological outcomes of PC.

**Conclusion.** SWA is a risk factor for PC and may be associated with venereal diseases. New studies are required in other populations to test other possible nosological links with SWA. **Zequi SC, Guimarães GC, da Fonseca FP, Ferreira U, de Matheus WE, Reis LO, Aita GA, Glina S, Fanni VSS, Perez MDC, Guidoni LRM, Ortiz V, Nogueira L, Rocha LCA, Cuck G, da Costa WH, Moniz RR, Dantas Jr. JH, Soares FA, and Lopes A. Sex with animals (SWA): Behavioral characteristics and possible association with penile cancer. A multicenter study. J Sex Med 2012;9:1860–1867.**

**Key Words.** Sex with Animals; Bestiality; Penile Cancer; Zoophilia; Risk Factor; Sexually Transmitted Diseases; HPV

## Introduction

Penile cancer (PC) is rare in the developed world but frequent in poor regions [1]. Risk factors for PC include unfavorable hygiene, poverty, chronic balanopreputial irritation, premalignant penile lesions, and smoking [2]. Human papillomavirus (HPV) infection is associated with approximately half of PC cases, but its role in PC carcinogenesis has not been clearly established [3]. The role of promiscuity and other sexually transmitted diseases (STDs) in PC is also not completely understood [4].

The present case-control study investigated whether a personal history of sex with animals (SWA), which is a common male sexual practice in rural areas with high PC prevalence, plays a role in PC. We also describe clinical and demographic characteristics of this sexual behavior.

## Materials and Methods

### Study Design and Subjects

Data were collected at 16 tertiary urology or oncology centers in 12 Brazilian cities (Table 1). The subjects included new PC cases and patients previously treated for PC, all of whom were enrolled by mail or by phone. The control group was composed of healthy males aged 18 to 80 years seeking medical attention for benign uropathies, check-up or for cancer prevention. We ascertained that control subjects lived in rural zones during childhood and adolescence and were exposed to animal-contact hazards. Individuals who grew up in an urban environment were excluded. A questionnaire about personal and sexual habits was completed by all subjects via an in-person semi-structured interview with their physicians. This study was approved by our institutional review boards. All subjects provided written informed consent.

The selected variables were race, age at enrollment, age of first sexual relationship, history of STD (urethritis, gonorrhea, syphilis, condyloma acuminata, HIV infection), penile premalignant lesions (Queyrat's erythroplasia, Bowen's disease, lichen sclerosis, balanitis xerotica obliterans, chronic balanitis), phimosis and circumcision, age at circumcision, number of lifetime sexual partners, smoking habits (past or current), history of sex with prostitutes, and SWA. The SWA questions addressed age at first and last SWA episodes, the frequency of SWA (in days, weeks, months), and the duration of SWA practice in complete years (computed by subtracting the age at the first SWA episode from the age at the last SWA episode, but only if SWA duration was more than 1 year). We investigated the animal species involved and whether SWA was performed individually or in a group of men, and whether SWA always occurred with the same animal or with several animals.

Clinicopathological data for premalignant lesions and PC (histological type, grade, 2002 TNM/UICC [5] (International Union Against Cancer) staging, and therapeutic modality) were obtained from medical records. A central office managed the data bank and statistical analyses using Statistical Package for the Social Sciences version 15 (SPSS Inc., Chicago, IL, USA).

### Statistical Analysis

Questionnaire responses from a total of 492 subjects, 118 PC patients and 374 controls (3.16 controls per case), were compared using logistic regression analysis to calculate exposure odds ratios (OR) and 95% confidence intervals (CIs) for both groups. The modeling results reflect adjusted incidence rate ratios. Proportions were determined using the  $\chi^2$  test or Fisher's exact test. Two-sided *P* values <0.05 and 95% CI were considered indicators of significance. Differences in age were

**Table 1** The rates of sex with animals (SWA) in Brazilian states, cities, and geographical regions

States (cities)	N	Geographic region <sup>†</sup>	Reporting SWA (%)	No SWA (%)
São Paulo* (São Paulo, Campinas, Barretos, Itapevi, Carapicuíba)	287	Southeast	94 (32.8)	193 (67.2)
Minas Gerais (Belo Horizonte)	29	Southeast	11 (37.9)	18 (62.1)
Piauí (Teresina)	53	Northeast	34 (64.2)	19 (35.8)
Maranhão (São Luís)	14	Northeast	8 (57.1)	6 (42.9)
Rio Grande do Norte (Natal)	28	Northeast	8 (28.6)	20 (71.4)
Paraíba (João Pessoa)	15	Northeast	4 (26.7)	11 (73.3)
Acre (Rio Branco)	20	North	6 (30)	14 (70)
Paraná (Curitiba)	46	South	6 (13)	40 (87)
Total	492	—	171 (34.8)	321 (65.2)

\*Nine hospitals participated from cities in São Paulo state.

<sup>†</sup>The rates of SWA were 45%, 33.2%, 20%, and 13% in the northeast, southeast, north, and south, respectively.

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