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Epidemiology of rapes in Costa Rica: Characterization of victims, perpetrators and circumstances surrounding forced intercourse

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ABSTRACT

Since the year 2000, the number of rapes in Costa Rica has increased at a rate of 42 cases per year. In 2011, 1786 rape cases were reported to the prosecution offices throughout the country, but only 1081 reports continued through the investigation process by the Judicial Investigation Agency. A randomly collected sample of 272 reports received by Judicial Investigation Agency, between July 2012 and June 2013, were prospectively studied. The analysis was limited to cases reported within 30 days following the rape. Results indicate that most of the provinces in the country show an incidence of about 38 cases/100,000 inhabitants. Ninety-six percent of the victims were women, 50% of which were between 10 and 19 years old. More than 99.5% of violators were men. The rape was perpetrated by a single aggressor in 85% of the cases. It was found that 48% of the victims were within the first 11 days of their menstrual cycle at the time of the attack. Twenty-nine percent of rapes occurred in "high rape-risk" circumstances—e.g., victims attacked by strangers in public outdoors or indoors. Twenty-five percent of rapes occur in "moderate rape-risk" circumstances—e.g., victims attacked indoors at public locations or at the home other than the victim's by relatives, sentimental partners or acquaintances. Fifteen percent of rapes occurred in "low rape-risk" circumstances—e.g., victims attacked in their homes by relatives or sentimental partners. In 67% of the cases the perpetrator was an acquaintance of the victim. Eleven percent of the cases corresponded to rapes in which the perpetrator was a partner or ex-partner of the victim. Fourteen percent and 25% of rapes could be classified as "proactive drug-facilitated rapes" or "opportunistic drug-facilitated rapes", respectively. Semen in the vaginal fluid of victims and the genetic profile of the alleged perpetrator were detected in 55% and 33% of the cases, respectively.

1. Introduction

Rape is a crime which threatens the dignity, and the emotional, physical and psychological integrity of its victims [1]. In Costa Rica, rape is defined as the intercourse by vaginal, anal or oral penetration, with a person of either sex in the following cases: (a) when a victim is less than twelve years of age, (b) when the victim is incapable of resisting, and (c) when violence or intimidation is employed to subdue the victim [2]. Moreover, rape can be qualified or aggravated. Qualified rapes occur when the victim dies, or when the aggressor is ancestor, descendant or brother of the victim. On the other hand, aggravated rapes occur when physical injuries are produced, or the aggressor is a trusted person such as a priest, teacher, medical doctor or police [2].

In 2011, 1786 accusations received by the prosecution offices of Costa Rica, distributed around the country, were classified as rape. However, only 1081 reports went through the process to be investigated by the Judicial Investigation Agency (OIJ for its acronym in Spanish), which is the institution responsible for handling these cases. During the investigation, valuable epidemiological and forensic information is collected, but records are confined to internal institutional documents.

Studies that address the epidemiology of rape around the world constitutes important inputs to: (a) understanding what elements constitute the root of the problem, (b) designing strategies to assure the victims' accessibility to legal resources and health care, (c) educating at-risk populations in prevention and behavioral response to rape, and (d) improving the justice administration system [3–5].

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In this work, a random sample of 272 reports received by the Biochemistry Section of the Forensic Science Department of the Judicial Investigation Agency, between July 2012 and June 2013, was prospectively collected and studied in order to characterize victims, perpetrators and circumstances surrounding the cases of rape that occurred in Costa Rica.

2. Materials and methods

2.1. Study group and analysis design

The numbers of rape cases from 2000 to 2011 were obtained from databases of the Judiciary's Planning Office and used to calculate the increase of rape incidence in the last decade. On the other hand, epidemiologic data of rapes were calculated using a sample which was randomly and prospectively collected from reports received by the Forensic Science Department's Biochemistry Section of the Judicial Investigation Agency, between July 2012 and June 2013. The reports summarize information obtained during a standard interview, in which victims are guided by trained personal to provide the data required for the investigation. The personal in charge of applying the interview has training in forensic biochemistry and is qualified to perform this task. Both interview and interviewer were approved by Forensic Science Department's Quality Assurance Unit. Some records do not contain the entire information requested because (a) in order to reduce re-victimization by forensic inquiries, victims were not forced to answer the full questionnaire during interview, (b) some victims were drugged or intoxicated at the time of the attack, and therefore they did not remember some, if not all, circumstances surrounding the rape, and (c) some questions do not apply to all victims (e.g., date of the late menstrual period do not apply to male, menopausal or child victims). Therefore, complete and incomplete reports were used to extract the available information. It was indicated for each variable how many records were included in the analysis. There were no concerns about gender, age, religion, or national, geographic, racial or ethnic origin of the victim, nor concern for the veracity of the accusation. The study was limited to cases reported within the 30 days following the rape, excluding rapes chronically perpetrated. Cases corresponding to other sexual crimes different than rape were excluded from the study. Signed releases and due consent were provided by all the victims or their relatives to allow their testimonies to be used in the forensic investigation. The Scientific Ethical Committee of the Universidad de Costa Rica approved this study.

2.2. Statistical analysis

Statistical analyses were performed using the statistical software IBM® SPSS v 21.0 (SPSS, Inc., Chicago, IL, USA). The rate of increase in the number of accusations received by the prosecution offices during the period between 2000 and 2011 was determined using linear regression analysis. The significance of the differences in the distribution of rapes by age and the time elapsed between alleged rapes and forensic examination of victims was assessed by the Student's *t*-test. The analysis of the phase of the menstrual cycle in which the victims were at the rape moment was assessed by a Chi-square non-parametric test. The geographic distribution of rapes was assessed by Kolmogorov–Smirnov non-parametric test. The relationship between victims who bathe (or not) before the sample collection and semen recovery, and the relation between type perpetrator and use of physical violence were evaluated by one-way ANOVA, followed by a post-hoc analysis (Tukey HSD). The relation between type perpetrator and the local where rape occurred was evaluated by one-way ANOVA and a bivariate correlation, followed by a post-hoc analysis (Tukey HSD). Additionally, this relation was assessed by a risk analysis (ODD-ratio). The effect of the time elapsed between rape and collection of vaginal fluid samples, on the probability to recover semen and determine their genetic profile was assessed by a binomial non-parametric test. Values of $P < 0.05$ were considered as significant.

Table 1
Geographic distribution of rape in Costa Rica between July 2012 and June 2013.

Province	Costa Rican population in 2012–2013[a]			Rape incidence[b]
	Men	Women	Total	
San José	848.409	847.633	1.696.042	38.3
Alajuela	456.328	442.730	899.057	43.1
Cartago	263.167	259.004	522.171	25.1
Heredia	236.978	229.637	466.615	45.0
Guanacaste	142.404	137.377	279.781	46.9
Puntarenas	189.788	178.191	367.978	33.9
Limón	241.067	220.208	461.275	32.7

[a] Data obtained from Instituto Nacional de Estadística y Censos de Costa Rica.
[b] Incidence rate was projected form our results and is expressed as number of cases per 100,000 population per year.

3. Results and discussion

3.1. Geographic and demographic issues

Costa Rica is a Central American country whose population in 2012 was approximately 4.7 million people. Its territory (51,100 km^2) is divided in 81 municipalities, which are grouped in seven provinces (Table 1; Fig. 1). Thirty-nine prosecution offices are distributed throughout the country to receive crime reports

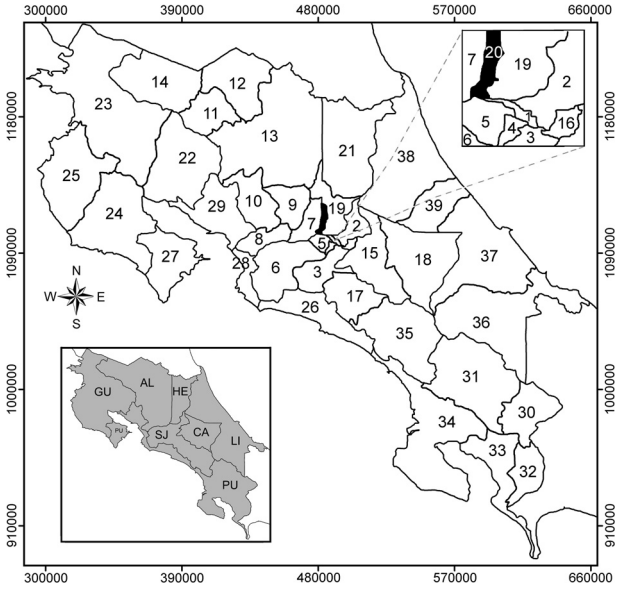

Fig. 1. Geographic scope of prosecution offices receiving crime reports in Costa Rica. Offices are located in: 1er Circuito Judicial de San José (1), 2d° Circuito Judicial de San José (2), Desamparados (3), Hatillo (4), Pavas (5), Puriscal (6), Alajuela (7), Atenas (8), Grecia (9), San Ramón (10), Guatuso (11), Los Chiles (12), San Carlos (13), Upala (14), Cartago (15), La Unión (16), Tarrazú (17), Turrialba (18), Heredia (19), San Joaquín de Flores (20), Sarapiquí (21), Cañas (22), Liberia (23), Nicoya (24), Santa Cruz (25), Aguirre y Parrita (26), Cóbano (27), Garabito (28), Puntarenas (29), Coto Brus (30), Buenos Aires (31), Corredores (32), Golfito (33), Osa (34), Pérez Zeledón (35), Bribrí (36), Limón (37), Poccocí (38) and Siquirres (39). In the box at the bottom left is showed the division of Costa Rica in provinces: San José (SJ), Alajuela (AL), Heredia (HE), Cartago (CA), Guanacaste (GU), Puntarenas (PU) and Limón (LI). The Forensic Sciences Center is located in San Joaquín de Flores (20), which is marked in black in the box top right.