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ORIGINAL RESEARCH

An Observational Study of Sexual Assaults in French Guiana During 2019–2020

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Introduction: Sexual violence is a major public health issue, including in French Guiana. The feeling of insecurity is significant in this part of France. Sexual violence is an important reason for consultation in forensic and emergency medicine. The challenge is to provide care within the first 72 hours, particularly in medicolegal terms and for infectious disease management. The objectives of our study were, firstly, to establish the epidemiology of sexual assaults at Cayenne General Hospital (CGH), and secondly, to evaluate the management of these victims.

Materials and Methods: From January 1st, 2019 to December 31st, 2020, we conducted a single-center retrospective descriptive study including patients who were consulted for sexual assaults in the Forensic medicine and the Emergency departments of CGH.

Results: Over this period, 400 sexual assault victims were consulted. Most of them, were women (87%) with a median age of 13 years-old [8; 17.5]. The aggressor was mostly male (99%) frequently known by the victim (87%) and from her family (39%). Suspected assaults represented 19% of consultations. The most frequent assault on women was penile-vaginal penetration (82%) and penile-anal penetration (77%) on men. The delay of consultation was superior to 72 hours in 60% of the cases. A psychological follow-up was recommended for 62% of these victims.

Conclusion: This work allowed to identify a young and female population at risk, most often assaulted by a male known to her. Most of the patients consulted more than 72 hours after the assault. Our study highlights the need for prevention actions in French Guiana focusing on this population at risk.

Keywords: sexual assaults, emergency, management, epidemiology, child abuse

Introduction

According to the World Health Organization, 35% of women experienced physical and/or sexual violence at least once in their lives.[1] Consequences of this violence can be dramatic at physical, sexual and psychological levels.[2,3] In France, the government updated its definitions and presented rape as "any act of sexual penetration, or any oral-genital act committed on a person, by violence, constraint, threat or surprise".[4] Sexual assault is defined as "assault committed with violence, coercion, threat or surprise or […] committed on a minor by an adult regardless of the nature of the relationship between the assailant and the victim, including if they are married". The survey conducted in France, by the French Institute of Public Opinion (IFOP) in February 2018, determined that 12% of women reported having been raped and 43% reported having suffered sexual assault during their lifetime.[5] The Virage survey in 2015 estimated that 62,000 women and 2700 men were victims of rape or attempted rape each year in France.[6] This survey indicated that women are exposed to several types of violence, including sexual violence, throughout their lives, whereas men, are mostly victims of sexual assault during childhood. This survey also revealed a median age of victims, before 9 years-old for girls and before 10 years-old for boys.[7]

French Guiana presents a higher number of violent acts and a higher overall crime rate than the rest of France, which, in certain circumstances, requires a local adaptation of care regarding our health network.[8,9] French Guiana is a French

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overseas territory located in South America between Brazil and Suriname. Its population consists of 276,128 inhabitants, including 144,501 for the main city of Cayenne.[10] The French Guianese population is one of the youngest in France and, according to the National Institute of Statistics and Economic Studies (INSEE), one-third is of foreign origin.[11] There is a strong feeling of insecurity: three out of ten Guianese feel insecure (one out of ten in mainland France).[12] Moreover, the French Guianese population presents a high level of precariousness and strong social inequalities, sources of vulnerability.[13]

About crime, sexual violence is an important issue in forensic medicine.[14] Prompt and appropriate treatment contributes to the preservation of physical health and prevention of psychological consequences.[15,16] The main issue is to treat victims as soon as possible, especially within the 72 first hours, in order to administer post-exposure HIV prophylaxis and to allow preservation of forensic evidences.[17] Although various studies suggest a high incidence of violence, epidemiological data about sexual assaults are lacking in French Guiana. The objective of our work is to evaluate the epidemiology of sexual assault victims managed at the Cayenne General Hospital (CGH), to detail the clinical, biological, social and demographic characteristics of these patients, as well as their management.

Materials and Methods

Study Setting

We conducted a retrospective descriptive study at Cayenne General Hospital (CGH) from January 1st, 2019 to December 31st, 2020. We collected data concerning patients who were consulted for sexual assault at the Forensic Medicine Department (FMD) and Emergency Department (ED).

Description of the Study Population

The study population included all patients admitted to the FMD and ED of the CGH in a sexual assault context. Not included patients were those consulting for physical violence without sexual assault.

Variables Studied and Statistical Analyses

The variables studied concerned data related to the consultation, the victim, the assault and the assailant. We secondly collected the data from the clinical examination and those concerning the medical management. Statistical analyses were performed using Stata 12® software (StataCorp, College Station, TX, USA) and Excel® software (Microsoft Corporation, Redmond, WA, USA). Continuous variables were expressed as mean ± standard deviation or median (1st interquartile; 3rd interquartile) and categorical variables as number (percentage) and were compared by the χ^2-test of independence. A probability p of type 1 ≤ 0.05 was considered statistically significant.

Regulatory Aspects

The typology of this study complies with the Declaration of Helsinki and corresponds to Research Not Involving the Human Person (RnIPH) under the French law. All data were collected from patients' medical records in the emergency department. The data were pseudonymized and processed by healthcare staff in the emergency department (principal investigator or any person under his responsibility). The study therefore corresponds to an internal research study, as defined by the Commission Nationale de l'Informatique et des Libertés (CNIL) MR-004. In addition, participants were collectively informed by posters in the emergency department, in the welcome booklet and on the hospital website (general information on clinical research). Any objections by patients to participating in the study were searched and received. The study was registered in the hospital's data processing register by the Centre Hospitalier de Cayenne's Data Protection Officer.

Results

Description of the Population

This study collected data from 400 victims. The population sex-ratio F/M was 6.55 and the median age was 13 [8; 17] years-old (female 14 [9; 18]; male 10 [5; 15] years-old). Figure 1 shows age and gender distribution of the study

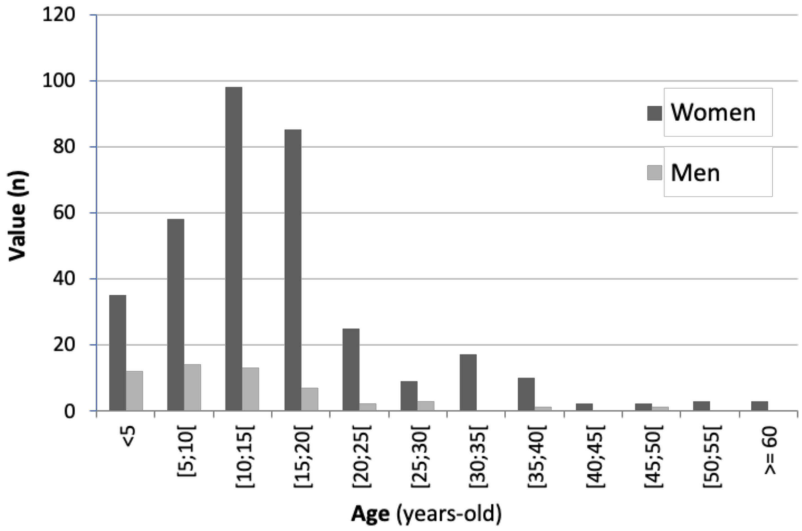

Figure 1 Age and gender distribution of sexual assault victims (n = 400).

population. Among the women, 118 (34%) were non-menstruating. Of the women who were menstruating, 11 (9%) were using effective contraception. Two (0.6%) women were pregnant at the time of the incident, and 12 (3.5%) women confirmed pregnancy after the incident. Concerning sexual relations, 211 (61%) women and 40 (75%) men never had sexual relations before the assault. It should also be noted that 15 (4%) victims presented disabilities (motor or psychological). About origins, 239 (70%) were born in French Guiana, 41 (12%) in Haïti and 24 (7%) in Brazil.

Assailant Characteristics

The assailant was almost exclusively male (n = 396, 99%) and known to the victim in 308 (87%) cases (Figure 2). Of the known assailants, 140 (46%) assaults were perpetrated by a family member. In Table 1, it appears that victims under 20 years-old mostly knew their aggressor, who was often a family member. Among assaults by a partner or ex-partner, 17 (47%) occurred before the age of 20. Among assaults perpetrated by someone known by the victim, 94 (74%) of the assaults occurred before the age of 20, $p < 0.001$. Finally, the assault was perpetrated by two or more aggressors in 44 (11%) cases.

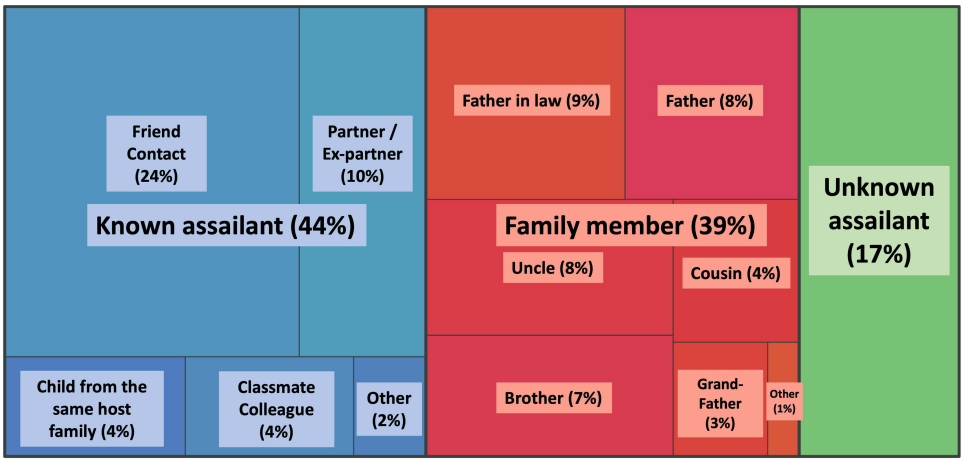

Figure 2 Assailant-victims socio-familial relationship (n= 354).

Table 1 Breakdown of Assailants by Victim's Age and Gender

Sexual Assailant	Family Member (Excluding Partner)	Partner	Other Known Assailant	p value
Victim age:				
Before 20 years-old	135 (96%)	17 (47%)	94 (74%)	p<0.001
Before 15 years-old	100 (7%)	6 (31%)	0	
Victim gender:				
Female	123 (39%)	38 (12%)	110 (35%)	p=0.04
Male	17 (41%)	0	21 (51%)	

Circumstances of the Assault

The location of assaults was available in 249 (62%) medical cases (Figure 3). In 155 (47%) files, the victims reported repeated assaults. Victims of a known assailant were more frequently exposed to repeated assaults (53% vs 9%, $p < 0.001$), especially victims from a family member (n = 89 (70%)). Victims reported explicit threats in 72 (18%) cases, of which 27 (37%) contained death threats, and 14 (20%) involved the use of weapons. In 80 (20%) cases, victims declared physical violence and 16 (4%) victims reported having been drugged. Of these, 11 (69%) reported partial or total amnesia of the assault.

Assaults Characteristics

Assault was only suspected in 76 (19%) cases: either touching or penetration. These cases mainly involved children (n = 30, 40%) exanimated when there was an assault within the same sibling. Other cases involved suspicions of assault in the presence of suggestive lesions during an emergency consultation for other reasons. The proportion of victims consulting for rape, ie, sexual assault with penetration, was 59% (n = 234): 208 (60%) female victims and 26 (49%) male victims. The characteristics of these assaults are presented in Table 2. Among women who consulted for an assault with penetration, the most frequent assault was penile-vaginal (n = 171, 82%); among men, it was penile-anal (n = 20, 77%). Assaults with penetration were more common in assaults by known assailants: 81% vs 57%, p = 0.004. Rape victims declared that their assailant(s) had not used a condom in 192 (82%) cases.

Management of the Victims

Concerning the 292 cases for which consultation delay was reported, 175 (61%) had an assault-consultation delay of more than 72 hours. Table 3 lists the variables with a significant influence on this delay in univariate analysis. Among the youngest victims (<20 years-old), the assault-consultation delay was significantly higher than 72 hours. When the assailant was unknown, 32 (76%)

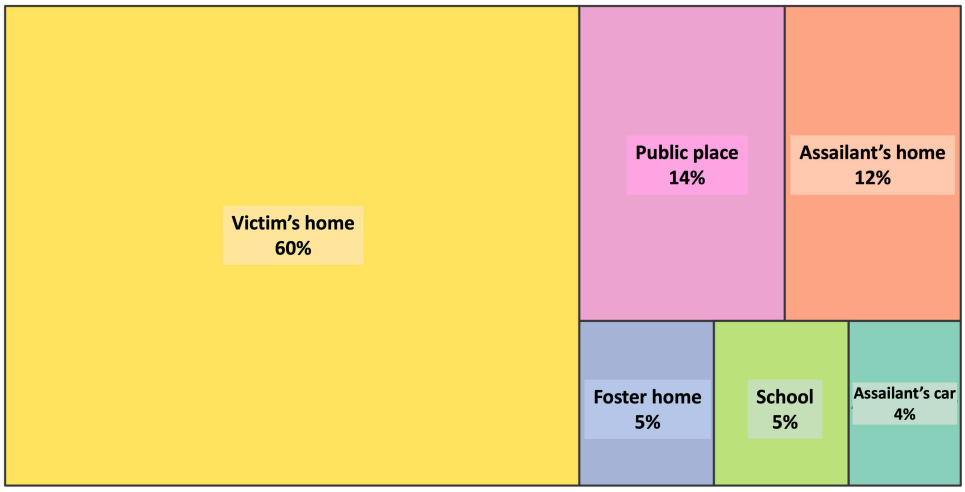

Figure 3 Locations of sexual assaults incidents (n= 249).

Table 2 Types of Sexual Assaults Suffered by Victims

Sexual Assault		Female (n=347)	Male (n=53)
Rape		208	26
Oral penetration	Penile	46 (22%)	16 (61%)
Anal penetration	Penile	36 (17%)	20 (77%)
	Digital	6 (3%)	1 (4%)
	Item	0	1 (4%)
Vaginal penetration	Penile	171 (82%)	
	Digital	35 (17%)	
	Item	4 (2%)	
Forced oral sex		14 (7%)	1 (4%)
Multiples sites of penetrations		62 (29%)	10 (38%)

Table 3 Characteristics Influencing the Delay of Consultation

Variables		Cs < 72h* 115 (39%)	Cs > 72h** 177 (61%)	p value
Age	<20 years-old	70 (32%)	147 (68%)	0.017
	>20 years-old	44 (59%)	30 (41%)	
Assailant	Unknown	32 (76%)	10 (24%)	<0.001
	Known	79 (32%)	164 (67%)	
Death threats	No	101 (38%)	167 (62%)	0.047
	Yes	14 (58%)	10 (42%)	
Chemical submission	No	105 (38%)	172 (62%)	0.026
	Yes	10 (67%)	5 (33%)	

Notes: *Assault-Consultation delay < 72 hours. **Assault-Consultation delay > 72 hours.

victims consulted within the first 72 hours, but when the assailant was known to the victim, 164 (67%) consulted in more than 72 hours. The presence of death threats, as well as the use of chemical intoxication were associated with an early consultation (<72 hours). Scarifications were also mentioned in 9 (2%) files and 192 (57%) women presented genital lesions. Of these, 23 (12%) had recent hymenal lesions, 31 (9.3%) had recent vulvar lesions and 15 (4%) had anal lesions. In the male population, 10 (20%) men had anal lesions. Finally, 44 (11%) victims reported suicidal ideation and suicide attempts were reported as related to the assault for 13 (3%) victims. Psychological follow-up was recommended for 248 (62%) victims. Table 4 summarizes the medical management according to the type of assault and the consultation delay. Overall, 204 (51%) victims required infectious

Table 4 Management According to Consultation Delay and Type of Assault

	Consultation Delay <72h		Consultation Delay > 72h		Total n = 400
	Penetration or Suspicion n = 80	No Penetration n = 21	Penetration or Suspicion n = 133	No Penetration n = 27	
Infectious samples	72 (90%)	3 (14%)	87 (65%)	2 (7%)	204 (51%)
Forensic samples	74 (92%)	8 (38%)	9 (6.8%)	–	115 (29%)
Toxicologic samples	13 (16%)	–	4 (3.0%)	–	24 (6%)
Post exposure prophylaxis	61 (76%)	1 (5%)	4 (3.0%)	–	83 (21%)
Emergency contraception	48/72 (67%)	1/20 (5.0%)	4/118 (3%)	0/24 (0%)	62/347 (18%)

samples in order to search for possible contamination by sexually transmitted diseases; 115 (29%) required forensic samples at the request of police in case of judicial investigations and 24 (6%) toxicological samples in case of suspected chemical submission.

Discussion

This study described, during the years of 2019 and 2020, the epidemiology of sexual assaults managed at the Cayenne General Hospital. This is the most recent and largest cohort on this subject in French Guiana. The population of victims studied was mainly female (87%), young (14 years old) and mostly victims of sexual assaults with penetration. Niort et al found the same results in 2014 studying rape victims treated in Marseille over ten years.[14] Among the results of our study, the assailant was mostly male (99%), known to the victim (87%), and more precisely from the family circle. Similar findings were reported in the Virage survey conducted in 2015 in France.[6] These characteristics were also found in the work of Dieb Miziara et al, who studied 13,870 sexual assaults in 2017 in Brazil, the neighboring country.[18] Like the work conducted by Dupont et al in Paris in 2012 and Sariola et al in Finland in 1996, the identity of intrafamily assailant in our study was mainly the stepfather, father and uncle.[19,20] Our work revealed that victims of intrafamilial assaults were younger and had extended consultation delays. Family pressure and fear of social rejection are recognized as consultation barriers.[19] Several studies show that when the assault is within the family circle, there are many taboos creating a minimization of the victim's voice. This situation is very pronounced in case of assault within siblings, due to a family desire to avoid outside intervention.[19] As in many studies, our work found a large number of repeated assaults, especially among victims whose assailant was known, and more particularly within the family and marital circle.[19,21] Like the results of Dupont et al, in our cohort, suspicions by family or health professionals represented 19% and were mostly young victims.[19] This could be justified mainly by the difficulty of these victims, because of their age, to report the facts. The study by Dupont et al set out solutions to help victims to reveal their assault but also to help them in their support:

- Information to young people on the importance of disclosing to adults and legal authorities;
- Information to victims' relatives on the need to help them disclose;
- Information to professionals on their role and responsibility in listening to victims but also on prevention.

Another obstacle to medical consultation seems to be the origin of the victims. Indeed, victims of foreign origin are frequently unaware of their rights and do not dare to consult a doctor or file a complaint.[13] According to the INSEE, one person out of three in French Guiana is of foreign origin, mostly Surinamese, Haitian or Brazilian.[11] In addition, there are also important Bushinengue and Amerindian communities.[22] The report by Le Goaziou in 2013 highlighted that during situations of sexual violence, groups with strong social ties and solidarity manage internal conflicts within their community.[23] In French Guiana, targeted awareness campaigns seem necessary. Measures such as health mediators or information from local health professionals could help this population and thus allow them better access to legal and medical services. A specific management for minors, who represent the majority of our victims, must be organized in our hospitals.[24] In 2020, a plan to fight violence against children was proposed by the French government.[25] Its objective, by 2022, was the creation of Pediatric Reception Units for Children at Risk (UAPED) allowing an adapted management.

As found in many studies, few female victims in our study were covered by effective contraception or protections against sexually transmitted infections.[5,14] These results are all the more important in view of the consultation delays, given the epidemic of HIV and other sexually transmitted infections in French Guiana.[26,27] We also observed 12 reported pregnancies after the event. These pregnancies resulting from rape expose the child to infanticide and violence.[3,28] It is all the more important to quickly provide emergency contraception for victims who consult within the first 72 hours.[17] As found in the results of Niort et al in Marseilles, the most frequent form of rape was penile-vaginal about women and penile-anal about men.[14] The study by Kolopp et al in 2019 revealed that within the first 4 days after the assault, they found genital lesions in 34% and peri-genital lesions in 19% of cases.[15] In our study, few victims presented recent genital lesions; however, many victims consulted long after the event making it difficult to prove crime as it is already reported in several studies.[18]

Sexual violence also occurs consequences on mental health.[3] During the survey conducted by the IFOP in 2018, 38% of rape victims had suicidal ideations, and 21% had attempted suicide.[5] Numerous studies reported psychological signs related to the trauma with long-term consequences: higher risk of suicide, self-mutilation, anxiety disorders, depression, sleep disorders, cognitive disorders, eating disorders, and addictions.[3,29] Victims can also present stress-related disorders such as cardiovascular diseases, obesity, diabetes, gynecological disorders, sexually transmitted infections, and chronic pain.[2] It is therefore important to prevent these risks by appropriate psychological follow-up. Our retrospective study did not allow us to explore the data relating to the psychological management of victims but most victims of recent penetration assaults received forensic and infectious examinations, as well as antiretroviral treatment when required. It is also essential to inform the victims of the need to continue the medical care follow-up.[30,31] A telephone recall to the victims, or an immediate appointment by the medical staff, could thus facilitate the victim's orientation. Our work needs to be completed with data from the other hospitals in French Guiana. It is therefore difficult to conclude on the precise epidemiology of sexual violence on the whole territory. Setting up an alert unit in French Guiana could improve our knowledge of this phenomenon and enable us to work on various ways to explore prevention and improve care for these victims.[30,31]

Conclusion

This study emphasizes that the youngest female victims are the most in danger. The assailants are mostly male, known to the victim, especially within the family circle. Our work highlights the need for prevention actions in French Guiana via health or education professionals in contact with the population at risk. A warning unit would allow a better knowledge of this phenomenon throughout the territory as well as the set-up of a multidisciplinary management.

Disclosure

The authors report no conflicts of interest in this work.

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