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Care of women and girls after sexual assault in Geneva: A descriptive study between 2005 and 2014

Dominique Ricard-Gauthier [a,*], Jasmine Abdulcadir [a], Fracasso Tony [b], Michal Yaron [a]

[a] Department of Gynecology and Obstetrics, University of Geneva Hospitals, Switzerland
[b] Department of Forensic Medicine, University of Geneva Hospitals, Switzerland

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ABSTRACT

Background and purpose: We aimed to examine epidemiological data and identify risk factors for sexual assault. This study included women seeking care at the Geneva University Hospitals emergency obstetrics and gynaecological unit.
Method: Retrospective, sociodemographic, and clinical data were collected from the medical reports.
Results: We reviewed 836 medical charts and registered 92.8 women and girls per year who consulted the emergency department after sexual assault. The average age was 26 (±12) years, with a median of 23 years. Body lesions were reported in 525 patients (63%) and genital traumatic lesions were reported in 230 (28%) patients. Sexual assault by a stranger was reported in 436 cases (52%). Thirty percent of patients knew their aggressor. Aggressions were predominantly committed on the weekend, accounting for 367 cases (46%), with nearly two-thirds (65%, n = 474) occurring between 10 pm and 6 am. In total, 399 (48%) patients who were sexually assaulted reported having consumed alcohol and 102 (12%) reported having taken drugs prior to the aggression; 80 (10%) patients had consumed both and 286 (34%) had amnesia. Half of the sample sought and received medical care within 24 h from the time the aggression took place.
Conclusion: Sexual assault risk factors in our study population in Geneva included use of drugs and alcohol, with amnesia. Future prevention and education interventions should target these areas.

Introduction

According to the World Health Organization (WHO), sexual violence is defined as any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or that are otherwise directed against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting including but not limited to home and work [1]. The prevalence of sexual assault varies from one country to another; it is difficult to determine exact numbers because it is suspected that not all sexual assaults and abuse are reported. In some countries, more than 1 in 4 women have been victims of sexual violence, with 37% of women living in developing countries having experienced physical or sexual violence committed by an intimate partner [2,3]. In 2019 in Switzerland, Amnesty International published a survey of 4495 women showing that 22% of Swiss women had experienced a sexual assault at least once in their lives [4].

The population at highest risk of sexual abuse are women who are either married or living with their partner [5,6]. Other known risk factors include use of drugs and/or alcohol, polygamy, prostitution, poverty, and young age [5,7,8]. It is important to properly care for victims of sexual abuse as the aggression often results in immediate and long-term physical and psychological consequences such as memory loss, chronic pain, and social difficulties. In addition, psychological impacts include depression with suicide attempts, post-traumatic stress disorder, anxiety, and sleep and eating disorders [9–11]. Mental health disorder is both a consequence and a risk factor for sexual abuse. Women with a history of mental health disorders have been found to have greater risk of a sexual assault owing to their vulnerability depending on their psychological state and have been proposed to be targeted by health and social services for the prevention of sexual violence [7,12–14].

Abbreviations: WHO, World Health Organization; SAC, Sexual Assault Consultation; OR, Odds Ratios.

* Corresponding author at: Avenue des Cavaliers 3, 1224 Chêne-Bougeries, Switzerland.
E-mail address: d.ricard.gauthier@gmail.com (D. Ricard-Gauthier).

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Women and girls who have been sexually assaulted are more likely to develop gynaecological problems such unwanted pregnancy, abortion, dysmenorrhea, and sexually transmitted diseases [7,12–14].

It has been shown that women who seek justice against the aggressor usually recover a better quality of life as they receive emotional support during the process, which helps to improve their mental health [15]. Implementation of a high-quality medical care response, with a trained team and complete account of events, is mandatory for the success of legal prosecution.

Our aim was to study the population of women and girls who experienced sexual assault and attended the emergency obstetrics and gynaecological unit of the Geneva University Hospitals. We also sought to identify risk factors that could guide future local prevention interventions.

Methods

We included all women and girls, regardless of age, for whom a sexual assault consultation (SAC) was conducted by a gynaecologist and a forensic doctor at the emergency obstetrics and gynaecological unit of the Geneva University Hospitals between 2006 and 2014.

According to our local protocol implemented in 2006, any woman or girl who has been sexually assaulted is triaged by a nurse, then examined by the forensic doctor and gynaecologist on call. After an interview with both health professionals, the forensic doctor examines the victim's body, collects medicolegal specimens (from under the nails or any other part of the body that may be relevant), and takes photos of any lesions. The gynaecologist uses a colposcope to examine the vulva, anus, vagina, and cervix and documents any genital or anal lesions, if present. Bacteriological samples are collected from the vagina and cervix to screen for *Chlamydia trachomatis* and *Neisseria gonorrhoeae*. Vaginal samples are also taken for microscopic analyses of possible sperm deposits.

Depending on the delay between the consultation and the assault, as well as the characteristics of the aggression, the patient receives the following prophylactic treatment: one intramuscular injection of ceftriaxone 500 mg, azithromycin 1 g per os, emergency contraception with ulipristal acetate or levonorgestrel (if not using any contraception), and prophylactic treatment for HIV and/or hepatitis B [5,16,17]. After the assault, a final report is written and signed by the forensic and gynaecologic health professionals. Final reports are secured and remain confidential. Reports can only be given to the patient, their lawyer, or to the judicial department handling legal proceedings. The SAC can be done under legal mandate if requested by the public prosecutor.

Our study was approved by our local ethics committee, the Swiss Association of Research Ethics Committees (ID 20 16-01144). Epidemiological and clinical data and details of sexual assaults were collected from all available SAC reports. We examined factors including age, marital status, amnesia regarding the aggression, and alcohol or drug consumption described by the woman before the aggression. In this study, we did not test for the presence of drugs in the urine that specifically suggested a drug-facilitated sexual assault. We analysed the timing and location of the aggression, number of aggressors, their relationship to the victim, and use of a weapon during the aggression. We analysed the presence of bodily, genital, or anal injuries; condom use; and the average time before victims sought a consultation.

Descriptive statistical analyses were performed using R Foundation software version R3.6 (The R Foundation for Statistical Computing, Vienna, Austria) and odds ratios (ORs) were calculated using Stata version 16 (StataCorp LLC, College Station, TX, USA).

Results

Between 2006 and 2014, 836 medical reports were available for review. The number of consultations remained relatively stable during the study period, with an average of 92.8 cases per year (Fig. 1), with the maximum number of consultations (n = 110) in 2011 and the fewest (n = 90) in 2013 (Fig. 1). The mean patient age was 26 (±12) years, with a median age of 23 years. The oldest patient was 92 years old and the youngest was 1 year old (Fig. 2). Minors represented 26% (n = 217) of the sample, with 2% (n = 19) under the age of 10 years. Thirty-five percent of the study population (n = 292) was between age 10 and 20 years and most were single (86%, n = 527). Married woman only represented 8% (n = 48) of patients. Fifteen percent (n = 127) of the patients had never had sexual vaginal penetration before the assault. Among these patients, most (n = 88, 66%) were younger than 16 years old (Fig. 2).

Body traumatic lesions were reported in 63% (n = 525) of cases. These included predominantly lower (n = 164, 31%) and upper limb (n = 109, 20%) injuries as well as head trauma (n = 111, 21%) (Fig. 3). Genital traumatic lesions were reported in 28% (n = 230) of cases. Among these, 58% (n = 171) were located in the lower genital tract (vulva, vagina, or cervix) and 18% (n = 53) involved the hymen. Lesions around the anal region accounted for 17% (n = 49) of cases (Fig. 4). Most body and genital lesions were bruises (n = 314, 60%) and abrasions (n = 109, 21%) (Fig. 5). In 29% (n = 239) of cases, there were no genital or body traumatic lesions. We categorized genital injuries into three groups, based on the article by Zilkens et al [18]. Lesions requiring no medical treatment, such as oedema, bruises, and redness, were defined as mild/moderate lesions whereas those requiring medical attention, such as open wounds and fractures, were defined as severe lesions. Severe genital injuries were found in 73.33% (n = 11) of cases after penile penetration (Table 1). However, penile penetration was also reported in cases with no (75.69%, n = 299) or mild to moderate injuries (79.69%, n = 79) (Table 1). The second most traumatic penetration was with both penile and digital penetration (13.33%, n = 2) (Table 1).

Fifty-two percent (n = 436) of the victims were assaulted by an unknown person whereas 30% (n = 249) knew their aggressor. Among the latter, 8% (n = 66) and 6% (n = 48) were assaulted by their partner and ex-partner, respectively. Only 4% (n = 37) of victims were sexually assaulted by a family member and these were mostly minors (n = 28, 76%) (Fig. 6). Assaults were usually commit-

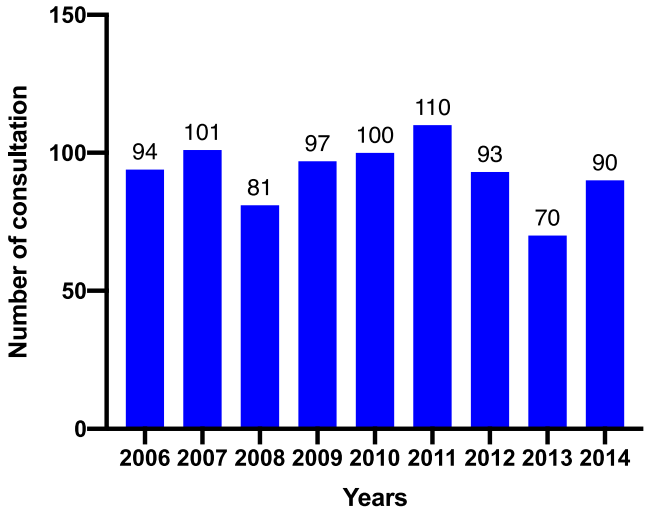

Fig. 1. Number of consultations per year.

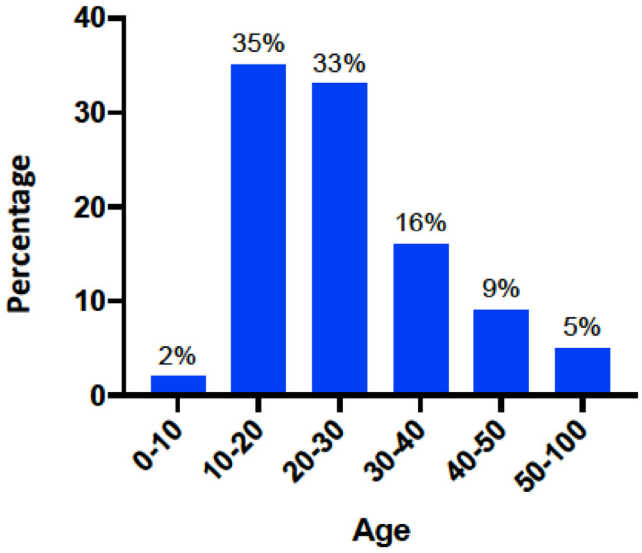

Fig. 2. Age distribution of the victims by age group with the highest prevalence of 35% between the age of 10 and 20 years old.

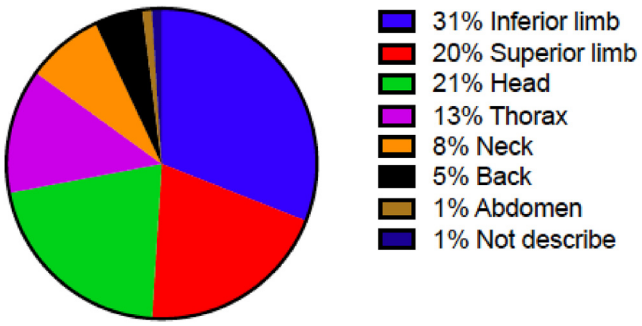

Fig. 3. Distribution of body lesions. There is a predominance for inferior limb lesions accounting for 31% of them followed by superior limb lesions.

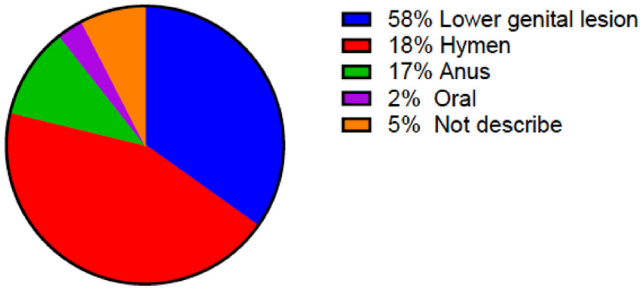

Fig. 4. Percentage of genital and oral lesions. The most frequent genital lesions are localized in the lower genital tract region with 74%.

ted by one person (n = 612, 83%) who rarely used a weapon (n = 49, 6%).

Nearly half of all sexual assaults were committed during the weekend, with two-thirds (n = 474, 65%) occurring between 10 pm and 6 am. In 43% (n = 339) of cases, the assault took place in the aggressor's home, 23% (n = 180) were in a public area, and 18% (n = 139) were in the victim's home. Victims reported having consumed alcohol in nearly half of cases (n = 399, 48%) or taken drugs (n = 102, 12%) prior to the aggression. No drug or alcohol consumption was reported by patients under 10 years old. Consumption of both substances was highest among 14- to 30-year-

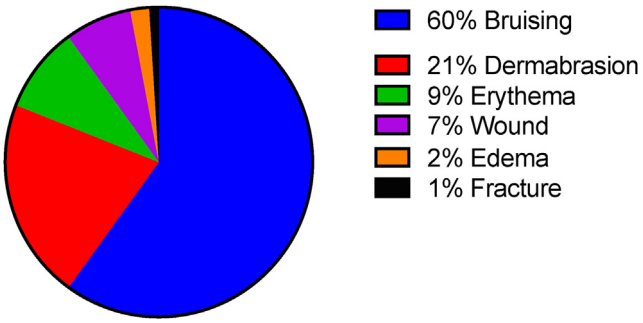

Fig. 5. Type of lesions. The most frequent type of lesions were bruises.

olds, with 76% (n = 303) having consumed alcohol and 67% (n = 72) reporting drug use. Thirty-four percent (n = 286) of women reported having memory loss. Among these, 17% (n = 49) had consumed both alcohol and drugs, 66% (n = 188) only alcohol, and 2% (n = 5) only drugs. Women were 13 times (OR 13.20, 95% confidence interval [CI] 9.12–19.13) more likely to present with amnesia if they had consumed alcohol and 2.7 times (2.53, 95% CI 1.67–3.85) more likely to have amnesia when they had used drugs (Table 2).

Forty-nine percent (n = 413) of the sample sought and received medical attention within 24 h of the aggression, 20% (n = 165) between 24 and 72 h, 9% (n = 79) between 72 h and 1 week, and 11% (n = 89) between 1 week and 1 month after the assault; 10% (n = 84) of patients sought consultation after 1 month. In only 1% (n = 6) of cases, the consultation delay was not documented in the medical report (Fig. 7). Patients older than 14 years were more likely to consult within the first 24 h compared with younger girls. Women between the ages of 31 and 50 years were 3.7 times (95% CI 1.84–7.37) more likely to consult within the first 24 h than girls under age 13 years (Table 3). In the first 24 h, more vaginal injuries were observed compared with later consultation (OR 1.61, 95% CI 1.18–2.19) (Table 3). Women assaulted by a known person were less likely to consult within the first 24 h (OR 0.49, 95% CI 0.37–0.65) in contrast to victims assaulted by an unknown person. Women assaulted by a family member other than their partner were less likely to consult within the first 24 h (OR 0.18, 95% CI 0.08–0.41) (Table 3). Compared with women who had not consumed alcohol, those who had consumed alcohol were twice as likely to consult within the first 24 h (OR 2.08, 95%, CI 1.58–2.74), and women who had used drugs were 1.8 times more likely than those who had not used drugs to seek consultation within that time frame (OR 1.79, 95% CI 1.17–2.74) (Table 3).Women presenting with amnesia were more likely to consult within the first 24 h compared with women who did not have amnesia (OR 1.37, 95% CI 1.03–1.82) (Table 3).

Discussion

Our study revealed that the number of women and girls who had experienced sexual assault and who were admitted to the obstetrics and gynaecology emergency unit of the Geneva University Hospitals remained unchanged between 2006 and 2014, with an average of 92.8 cases per year. This rate is despite the contemporary exponential diffusion and use of social media, which has greatly influenced and facilitated sexual encounters and sexual violence [19]. In the past few years, increased access to the Internet, social media, and pornography has facilitated sexual encounters, as well as sexual violence, including sexting, sharing nude images, and other risky sexual behaviours [20]. Some studies have highlighted that social media and online sexual encounters might

Table 1
Frequency of injury type according to the type of penetration.

	No lesion	Mild/moderate genital injuries*	Severe genital injuries**	P value
Type of penetration				<0.0001
Unknown	56 (14.17%)	4 (3.88%)	1 (6.66%)	
Finger	21 (5.3%)	15 (14.56%)	1 (6.66%)	
Object	4 (1.01%)	2 (1.94%)	0 (0%)	
Penile	299 (75.69%)	79 (79.69%)	11 (73.33%)	
Penile, finger	15 (3.79%)	2 (1.94%)	2 (13.33%)	
Penile, object	0 (0%)	1 (0.97%)	0 (0%)	

*Mild/moderate: edema, redness, bruise.
**Severe injuries: open, teared wounds.

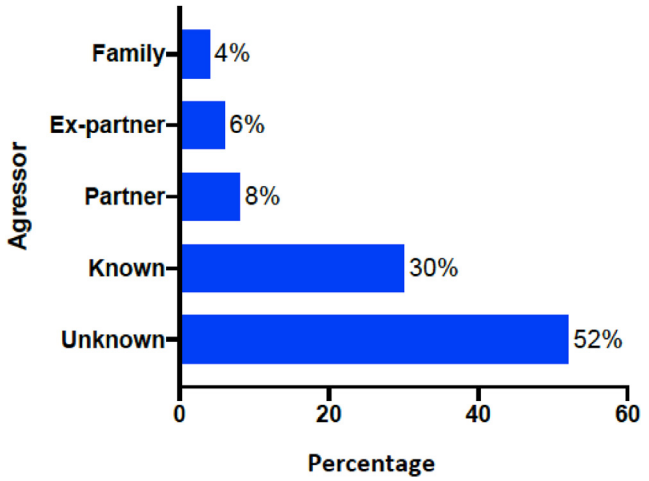

Fig. 6. Relationship to the aggressor. In half of the cases the aggressor was unknown and in 30% known.

Table 2
Logistic regression showing the relation (odds ratio) between amnesia and drug or alcohol consumption.

	alcohol	Drug
Amnesia		
Yes	13.2 (9.12–19.13)	1.08 (1.04–1.13)
No	1 (base outcome)	1 (base outcome)

*Values given are odds ratios with 95% confidence interval.

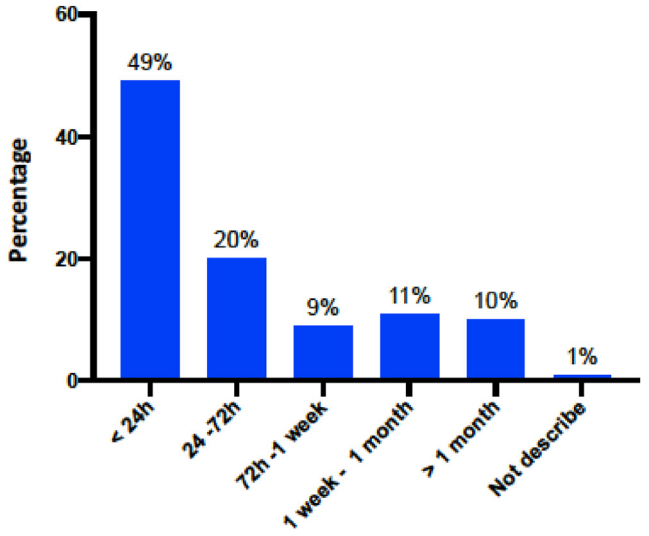

Fig. 7. Consultation delay in hours, week(s) and month(s).

Table 3
Logistic regression showing the relation (odds ratio) between time of consultation and characteristic of the assault.

	<24 h	24–72 h	<72 h
Perpetrator			
Unknown	1 (base outcome)	1 (base outcome)	1 (base outcome)
Known (Acquaintance, partner, ex-partner)	0.49 (0.37–0.65)	1.12 (0.79–1.59)	2.30 (1.68–3.15)
Family member	0.18 (0.08–0.41)	0.39 (0.12–1.29)	7.09 (3.48–14.49)
Victim alcohol intake			
No	1 (base outcome)	1 (base outcome)	1 (base outcome)
Yes	2.08 (1.58–2.74)	1.36 (0.96–1.92)	0.33 (0.24–0.46)
Victim drug intake			
No	1 (base outcome)	1 (base outcome)	1 (base outcome)
Yes	1.79 (1.17–2.74)	1.13 (0.67–1.88)	0.42 (0.24–0.72)
Genital injuries			
No	1 (base outcome)	1 (base outcome)	1 (base outcome)
Yes	1.61 (1.18–2.19))	1.05 (0.72–1.55)	0.51 (0.36–0.73))
Age of the victim			
0–13 years	1 (base outcome)	1 (base outcome)	1 (base outcome)
14–30 years	2.75 (1.43–5.29)	0.99 (0.48–2.05)	0.44 (0.24–0.79)
31–50 years	3.68 (1.84–7.37)	0.69 (0.31–1.54)	0.38 (0.20–0.72)
51 + years	3.63 (1.47–9.02)	0.75 (0.26–2.30)	0.39 (0.15–0.96)
Amnesia			
No	1 (base outcome)	1 (base outcome)	1 (base outcome)
Yes	1.37 (1.03–1.82)	1.65 (1.57–2.35)	0.41 (0.29–0.58)

*Values given are odds ratios with 95% confidence interval.

facilitate sexual assault with perpetrators who can manipulate or blackmail victims to organize a meeting point,[19–21] and this is especially true when teenagers and children are involved [19]. At the same time, awareness campaigns regarding sexual violence, such as those conducted by Amnesty International in Switzerland, might counteract the impact of social media via raising awareness and education [22].

Similar to previous studies from high-income countries, more women in their 20 s were represented in our total sample [23–25]. Children, teenagers, and older people are less inclined to seek consultation after sexual assault [24,26,27]. In addition, women in their 20 s in our sample were often assaulted at night and in settings where alcohol and drugs were available, such as at parties and nightlife activities with large crowds, which are all risk factors for sexual assault [28].

We observed a higher percentage of single than married women in our sample, in contrast to WHO statistics, which indicate that married status is a risk factor for sexual assault [5]. This discrepancy may be explained by the WHO mainly collecting data from low- and middle-income countries where the mean age of marriage is lower than that in Switzerland [29]. The mean age of marriage in Switzerland is 30 years and the mean age in our sample was <26 years. Moreover, in low- and middle-income countries, low income and education levels as well as higher rates of forced marriage under the age of 18 years have been shown to be independent risk factors of sexual violence, particularly against minors [6,30–33].

In accordance with previous publications, nearly half of our patients were assaulted in the home of the aggressor [25,34]. However, these data must be interpreted carefully because it has been proven that the location of the assault is mostly influenced by the victim's relationship to the aggressor and the age of the victim. Children, adolescents, and older women are more likely to be assaulted in their own homes [25,35–38]; middle-aged women are more frequently assaulted in the aggressor's home. Our high percentage of assaults in the home of the aggressor might be explained by the victims in our sample being mostly young women (mean age 26 years).

Alcohol consumption has been confirmed to be a risk factor for sexual assault in young women aged between 20 and 30 years old [23–25]. Alcohol and drug use decreases victims' awareness and increases their vulnerability and susceptibility to aggressive behaviour [26,30,31,39,40]. The combined effect of alcohol with drugs (cocaine, cannabis) or medication (anti-depressants and anxiolytics) further deteriorates individuals' awareness, making them more vulnerable to sexual aggressors and causing more frequent amnesia [41]. In contrast to several studies reporting that up to 34% of sexually assaulted women had consumed drugs, we found that only 12% of our sample reported having used drugs before the assault [41–43]. Alcohol consumption prior to the aggression was reported by nearly half of our cohort (48%). The highest rate of consumption of both alcohol and drugs was among the group 14 to 30 years old and was consumed at parties or bars. Substance abuse and nightlife activities have been previously reported to be risk factors for sexual assault [28,44–48].

Gathering forensic evidence requires that victims seek timely medical care after the assault. DNA samples are less likely to be present 7 days after the aggression [49,50]. Seventy percent of our patients sought consultation within 72 h of the assault, within a time frame that allows for recording of body lesions and collection of medicolegal samples [18,49,51]. According to the existing literature and our study findings, children tend to consult emergency services later in comparison with adolescents and young adults. As a consequence, genital or body lesions are less frequently found in this population [52]. One explanation for this delay is that children are less inclined to seek consultation because the perpetrator is often a family member who can manipulate the child by inducing feelings of guilt, shame, or fear [53]. Women who had consumed alcohol or drugs and who had amnesia were more likely to present to the emergency room within the first 24 h, according to our results. However, the latter finding is in contrast with those of other studies showing that women are less inclined to report to the police under those circumstances for fear that their consumption of alcohol or drugs or their amnesia will have a negative influence on their complaint [23,25,54,55]. Moreover, studies highlight that when victims declare the use of a psychoactive substance prior to an assault, the aggressor is less likely to be convicted in court [23,55].

In line with several publications, we found that approximately 50% of our victims presented with physical lesions and 28% with genital lesions, predominantly located in the lower genital tract [18,23,25]. Most of the reported lesions were on the body (36%–53%), probably as a result of resistance to the assault; gynaecological lesions were seen in only 24% of cases and were more frequently associated with digital penetration, in comparison with penile–vaginal penetration [56]. This highlights the importance of total body examination by a forensic doctor or trained team [23,25,57]. Timely recording of such lesions is imperative for successful legal outcomes against the sexual aggressor. Body lesions have a considerable influence on convictions in Switzerland as well as in other countries [23,54].

In Switzerland, the number of sexual assault cases reported to the police are documented in annual reports by the Federal Statistical Office [58]. However, there is no national collection of data on victims consulting at hospitals without a referral from the police, and there is no available information on the characteristics and circumstances of these assaults [59]. Ours is the first study to report such details in Switzerland.

Our study showed that the principal victims of sexual assault in the Geneva area between 2006 and 2014 were single women in their 20 s who had often consumed alcohol or drugs and that the aggression took place on a weekend, between 10 pm and 6 am, and especially during nightlife activities. These circumstances and characteristics of vulnerability could inform prevention, care, and education campaigns on sexual violence. Information about early consultation after an assault is also paramount to receiving timely care with prophylaxis and to the collection of forensic evidence, which highly influences the success of legal prosecution. Further multicentre and prospective studies in Switzerland could better inform preventive measures.

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Author agreement

All authors who have participated to this manuscript and, as such, who satisfy the criteria of authorship, have agreed for this publication. The manuscript has been approved by all authors.

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Dominique Ricard-Gauthier is a fourth-year intern who works in the department of gynecology and obstetrics at the University of Geneva Hospitals, Switzerland. This article is part of a research plan for her M.D. that began in 2014 and which enabled her to study many aspects of sexual violence through different publications such as the epidemiological aspect of paediatric sexual violence and factors influencing the filing of complaints. It also helped improve the management of victims in the emergency obstetrics and gynaecological unit.