

MESTRADO INTEGRADO EM MEDICINA

2011/2012

Diana Catarina Maltez Alves

Sexual Offenses Perpetrated by Children and Adolescents

março, 2012





Diana Catarina Maltez Alves

Sexual Offenses Perpetrated by Children and Adolescents

Mestrado Integrado em Medicina

Área: Medicina Legal

Trabalho efetuado sob a Orientação de:
Professora Doutora Teresa Maria Salgado de Magalhães
E sob a Co-orientação de:
Mestre Patrícia José Anastácio Jardim

março, 2012



Projecto de Opção do 6º ano — DECLARAÇÃO DE REPRODUÇÃO

Nome: Diana Catarina Maltez Alves
Endereço electrónico: med06219@med.up.pt
Telefone ou Telemóvel: 936752032
Número do Bilhete de Identidade: 13211312
Título da Dissertação: Sexual Offenses Perpetrated by Children and Adolescents
Orientador: Professora Doutora Teresa Maria Salgado de Magalhães
Ano de conclusão: 2012
Designação da área do projecto: Medicina Legal
É autorizada a reprodução integral desta Dissertação para efeitos de investigação e de divulgação pedagógica, em programas e projectos coordenados pela FMUP.
Faculdade de Medicina da Universidade do Porto,//
Assinatura:

Projeto de Opção do 6º ano - DECLARAÇÃO DE INTEGRIDADE



Eu, Diana Catarina Maltez Alves, abaixo assinado, nº mecanográfico 060801219, estudante do 6º ano do Mestrado Integrado em Medicina, na Faculdade de Medicina da Universidade do Porto, declaro ter atuado com absoluta integridade na elaboração deste projeto de opção.

Neste sentido, confirmo que **NÃO** incorri em plágio (ato pelo qual um indivíduo, mesmo por omissão, assume a autoria de um determinado trabalho intelectual, ou partes dele). Mais declaro que todas as frases que retirei de trabalhos anteriores pertencentes a outros autores, foram referenciadas, ou redigidas com novas palavras, tendo colocado, neste caso, a citação da fonte bibliográfica.

Faculdade de Medicina da Universidade do Porto,	
Assinatura:	

Sexual Offenses Perpetrated by Children and Adolescents

Authors

Diana Catarina Maltez Alves (corresponding Author)

Faculty of Medicine of Porto University, Al. Prof. Hernâni Monteiro 4200 - 319 Porto, Portugal e-mail address: med0219@ med.up.pt; Tel: +(351) 936752032

Patrícia José Anastácio Jardim MD MSc, Forensic Doctor

Faculty of Medicine of Porto University, Al. Prof. Hernâni Monteiro 4200 - 319 Porto Portugal National Institute of Legal Medicine – North Branch, Jardim Carrilho Videira, 4035-167 Porto, Portugal

Teresa Magalhães MD PhD, Forensic Doctor

Faculty of Medicine of Porto University, Al. Prof. Hernâni Monteiro 4200 - 319 Porto, Portugal National Institute of Legal Medicine – North Branch, Jardim Carrilho Videira, 4035-167 Porto, Portugal

Abstract

Introduction: Sexual violence is still often little associated by society with minor offenders. Therefore, the aim of this study is to expose some of the features of this kind of offense that can be used to provide information that help to understand and deal with these situations.

Material and methods: This study is a retrospective analysis of 238 suspected cases of sexual offenses perpetrated by children and adolescents, whose victims were observed in the north forensic medical services between 2004 and 2010.

Results: The alleged offenders were majority males (98.3%) with, in average, 14.4 years-old (Min=2; Max=17; SD=2.6) and known to the victims (34.9% family and 62.6% acquaintance). The victims were, in average, 11 years-old (Min=0.5; Max=82; SD=6.9) and mostly females (64.3%). The first suspicion was, in 59.2% of the cases, based on the disclosure made by the victim and was reported to health services (39.1%) or police (28.6%). The alleged offense was repeated, at least, in 14.7% and it took place at the offenders and/or victims' home (46.6%), under verbal threats (24.4%) or physical violence (47.9%), with intrusive sexual practices (vaginal, anal and/or oral penetration - 42.9%) and fondling (26.1%). In 72.7% of the cases, medico-legal examination took place more than 72 hours after the last offense and did not revealed physical (72.7%) or

biological evidence (95.4%). Judicial outcomes analysis (n=47) revealed that 57.4% of the cases had been filed because of complaint withdrawal (55.6%) and lack of evidence (37%), although, in the accused cases, 16.7% were acquitted and 83.3% had been convicted, generally with the application of educational measures.

Conclusions: These results, when compared to studies including adult offenders revealed: lower intra-familial abuse rates, higher prevalence of physical violence, and more frequent intrusive sexual practices. This study help to identify many aspects of this type of offenses which can help to promote strategies for detection, diagnoses and prevention of cases, as well as to protect victims and treat and/or rehab offenders.

Keywords:

Sexual offenses, children and adolescents sex offenders, characteristics

Introduction

In the last years the whole society has begun to consider sexual offenses a public health problem that it is driven by many factors derived from a range of social, cultural and economic contexts ^{1, 2}. Sexual violence is defined by the World Health Organization as "any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or 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" ². Sexual violence has a profound impact on physical and mental health, which can be as serious as the first, and may be equally long ^{1, 2}. The degree of harm depends on several factors: age of the victim, type and duration of abuse, relationship to the abuser, among others ³.

However, this type of violence is still often little associated by society with minor offenders. They are usually the victims, not the perpetrators. Nevertheless, many statistics suggest that a significant portion of sexual violence is perpetrated by this type of offenders ^{1, 4-6}. Some studies reveal that one in five total sexual offenses and one-third of sexual offenses perpetrated against children under 12 are committed by an individual under the age of 18 ⁴. Previous reports of adult offenders have indicated that in many cases sexual violence began during adolescence ^{5, 7-9}. United Kingdom criminal statistics indicate that in 1992 in England and Wales, juveniles, aged between 10 and

17, received 1329 cautions for sexual offenses; a further 366 were found guilty, which amounts to 7.3% of all convictions for sex offenses in the same year ⁹.

Nevertheless, the majority of studies focus on characteristics of male juvenile sexual offenders (they are the vast majority), as opposed to female or young children sexual offenders ^{1, 5, 9-12}. In fact, it is estimated than less of 5% of that type of offenders are females but there is little data about this kind of perpetrators which may be related with disagreements about the definition of abuse by females, social beliefs about juvenile females' behavior and parental denial about the behavior of these girls ^{12, 13}. Adding to this, in patriarchal societies, children may be less likely to be perceived by females as their property than by males ^{12, 13}.

As far as young children are concerned, they are historically regarded as asexual, and any evidence of sexual behavior has been questioned as a symptom of sexual abuse, which may lead to the fewer cases in which they are considered sexual offenders ¹⁴. In addition, young children are considered criminally irresponsible and can't be judged by the juvenile court in the majority of the countries, which means that there is no official records of offenses that are carried out by this group of children.

Meanwhile, it is important to study this group of minor offenders, because studies of adult sex offenders revealed that most of them began offending prior age 12 and that many of them were children with sexual behavior problems, defined as "children aged 12 or younger who initiate behaviors involving sexual body parts that are developmentally inappropriate or potentially harmful to themselves or others" ^{14, 15}.

In Portugal, in 2010, 10.21% of the sexual crimes reported to the police authorities were perpetrated by young people aged between 16 and 18 years old ¹⁶. A prospective study conducted, in 1997, at the north branch of the National Institute of Legal Medicine, revealed that in 26.9% of the cases the alleged offender was aged between 11 and 20 years ³.

Nonetheless, if we just consider these official figures, we will under-estimate these cases for several reasons: (a) children, below the age of criminal responsibility, may be not included in the crime statistics; (b) victims under-report sexual offenses, seeing that 50% of rapes may go unreported and 35% of children who are sexually victimized don't report this to anyone; (c) outsiders such as parents under-report, due to the offender age or/and because he/she is usually known to the family. In these situations, people often minimize or deny the seriousness of the behavior, ascribing it,

in the cases of adolescents offenders, to "adolescent experimentation", is usually done 9 , 12 , 17

According to the Portuguese Penal Code (Law 59/2007, September 4th), the criminal majority (the age at which an individual is supervised by the ordinary criminal law and no longer benefits from the fact that it is young) begins at 21 years and criminal responsibility at 16 years. Young people over 16 years and under the age of 21 are subject to specific criteria - Rules of young adults (Decree-Law 401/82, September 23rd). These criteria specify that, when applicable the term of imprisonment, the judge should sooth the penalty (Articles 73 and 74 of the Penal Code), when they have serious reasons to believe that the attenuation will undertake advantages for the social reintegration of the young offender, so they must assess in each case the nature and mode of execution of the crime, their motives, the personality of the young and his/her conduct before and after the crime. When a youngster aged between 12 and 16 years practices an act qualified by law as a crime, it conducts to the application of punitiveeducational measures (Portugal Punitive-Educational Law), approved by Law No. 166/99 of September 14th). These measures can range from a simple warning to an internment in an educational center. The choice of what measure should be applied has as base a measure which interferes minimally with the "autonomous decision-making and conduct of life of the child and that is most susceptible to have a greater adherence and support of their parents, legal guardians, or person having custody of them "(Article 6, Law No. 166/99, September 14) and which proves to be adequate. On the other hand, a child under 12 years old, in addition to being considered criminally irresponsible, as mentioned before, cannot also be subject to punitive-educational measures.

It is important to characterize the sexual offenses perpetrated by children and adolescents to better understand this serious problem since there is lack of data in many aspects of this type of offense and in Portugal there are no published data on this subject. Therefore, the aim of this study is to expose some of the features of this kind of offense and, based upon these data, verify if there are statistically significant differences between the group of offenders under 16 years, who are considered by the law criminally irresponsible, and the group of offenders with 16 or more years. These data can be used to provide information that help to promote strategies for detection, diagnoses and prevention of cases, as well as to protect victims and treat and/or rehab offenders.

Material and Methods

A retrospective study was conducted based on the analysis of forensic medical evaluation reports related to suspected cases of sexual offenses perpetrated by children and adolescents (under 18 years old), whose victims were observed in the north forensic medical services (north branch - Porto - and medico-legal offices of Braga, Bragança, Chaves, Guimarães, Mirandela, Penafiel, Santa Maria da Feira, Viana do Castelo and Vila Real), between 2004 and 2010 (n=238).

A questionnaire was applied to collect data, only by one researcher, ensuring the reliability of data collection. The study variables were divided into different sections: description of the case, characterization of the alleged offender, characterization of the victim, characterization of the alleged offense, forensic medical evaluation, diagnostic exams, forensic interviews, forensic conclusions and legal outcome. Due to the retrospective nature of study, it was not possible to collect all data of the different categories.

For the expressions used in this study, it should be noted that, with regard to the victim, was taken into account the Law 112/2009 of 16th September, which states that "the complaint submitted after the crime and the absence of strong evidence that it is unfounded, is assigned to the victim, for all purposes, legal status of "victim" and not "alleged victim". As for the suspect and the act committed by the same were used the terms "alleged offender" and "alleged offense", taking into account Article 32 of the Portuguese Constitution, which states that "The defendant is presumed innocent until the final judgment of condemnation sentence."

With regard to legal outcomes in cases where the alleged offender was 12 years or less, there isn't any judicial decision to be requested because, in Portugal, below this age, these children are considered criminally irresponsible (Law 59/2007, September 4^{th)} and cannot be subject to punitive-educational measures (Law 166/99, September 14th). In all other cases the legal outcomes were requested by mail to the Public Prosecutor's offices and/or Criminal Courts or Minors Court.

To collect data regarding the type of practice and the lesions observed, when these were multiple, only the most physically intrusive practice and the most severe sexual lesion were considered. When it was noticed more than one alleged perpetrator, it has been considered the offender who had the closest relationship with the victim; when the relationship between the victim and the alleged perpetrator was the same, it has been considered the oldest offender.

A descriptive study was done to evaluate all of the variables and a statistical study was used to compare the cases in which the alleged offender was under 16 years and the alleged offender was 16 or older.

The Database Software used was Excel 2010. Statistical analysis was performed with SPSS 18.0 for Windows. Chi-square Pearson test was used in the comparison and the verification of independence of categorical variables. It was assumed a significance level of 0.05.

Results

Over the studied 7-year period, 2231 victims of sexual offenses were examined at the north forensic medical services and 10.7% (n=238) of these offenses were allegedly perpetrated by people under 18 years of age.

1. Characterization of the alleged offender

In this study the average age of the offenders was 14 years old (median=15, minimum=2, maximum=17, SD=2.6); more than a half of the offenders (58%, n=138) were under 16 years old, and from these, 21.7% (n=30) were 12 years old or less.

The alleged offenders were, in the majority of the cases, males (98.3%, n=234). Only 1.7% (n=4) of the alleged offenses were perpetrated by a female (in 3 cases the female offender was under 16 years old - namely, a cousin, a sister and an acquaintance - and in one case the relationship between the victim and the alleged female offender was unknown). Regarding the sex of the offender, there wasn't any correlation study performed because there were only 4 cases in which the alleged offender was female (table 1).

The information about the activity of the alleged offender revealed that 13.9% (n=33) were students, 1.7% had a profession and 2.1% were unemployed. The data was not present in 82.4% of the cases.

About the background of the offenders, 3.8% (n=9) had a history of previous sexual assault and 2.1% (n=5) had other previous deviant behavior, drug abuse in 3 cases and other delinquent behavior not specified in the other 2 cases. There were no significant differences when comparing the two groups (p=0.70) (table 1).

In 34.9% (n=83) of the cases, the alleged offender was a member of the victim's family and in 62.6% (n=149) it was an acquaintance. Only in 2.5% (n=6) of the situations the offender was a completely stranger to the victim. There were no significant differences when comparing the two groups (p=0.10) (table 1).

2. Characterization of the victim

Considering the victims, the mean age was 11 years old (median=10, minimum=1, maximum=82, SD=6.9); more than half of the victims were 12 years or less (n=143, 60.1%) and only 3 were adults (40, 46 and 81 years old). When correlating the two groups of offenders (under 16 years and 16 years or more) significant differences were confirmed. The victims were younger when they were abused by younger perpetrators (group under 16 years) (p<0.05) (table 2).

Most victims were female (n=153, 64.3%). There were no significant differences when comparing the two study groups (p=0.20) (table 2).

Data on the victim's activity demonstrated that 77.3% (n=184) of them were students at the time of the aggression and 7.6% (n=18) was not active. Data were not available in 15.1% (n=36) of the cases. No significant statistical differences were found between groups (p=0.44) (table 2).

The information about personal background shows that only 0.8% of the cases (n=2) had a physical handicap and in 4.6% (n=11) had a mental handicap. Behavioral or emotional problems were reported in 8.8% (n=21) of the situations, like drug abuse (n=3), alcohol abuse (n=1), sexual behavior problems (n=3), self-mutilation (n=1), use of psychiatric medication (n=12) or delinquent behavior (n=1). There were no significant differences when comparing the two groups (p=0.56) (table 2).

About the type of family, in 28.2% (n=67) of the cases the victim lived in a nuclear family, 11.8 % (n=28) in a monoparental family, 7.1% (n=17) in an extended family and in 16.8% (n=40) in institutions or with foster families. In 24.4% (n=58) of the cases there was no data about this topic. No significant statistical differences were found between groups (p=0.26) (table 2).

3. Characterization of the first suspicion

The first suspicion of sexual offense in 39.9% (n=95) of cases came from the family of the victim. In 21.4% (n=51) of the situations, the person who made the report or complaint was another one, such as teachers, neighbors, doctors, friends,

psychologists and workers of the institution where the victim lived. In 38.7% (n=92) of the cases it wasn't possible to obtain this information. There were significant differences when comparing the two study groups (p<0.05), showing that when the perpetrator is younger the complaint is more probably made by the family of the victim (44.2%, n=61), and when the offender is older most of the time the identity of the person who made the complaint is not known (49%, n=49) (table 3).

In most cases, the source of suspicions was the victim discloser (59.2%, n=141). In 14.7% (n=35) of cases the source of the suspicions was the presence of an eyewitness at the moment of the alleged offense and in 11.8% (n=28) of the cases victims had signs or symptoms interpreted as suggestive of sexual contact (vulvar erythema with intense white leukorrhea; vulvar pain; rectal bleeding; pain, itching and anal fissures; dysuria, polyuria, and hematuria; urinary incontinence; presence of condyloma acuminata; blood stain on the victim's underwear; sudden change and suspect behavior). In 2.5% (n=6) of the cases, suspicion was originated by the existence of a prior sexual offense by the alleged perpetrator against other person close to the victim. In 3.8% (n=9) of suspected cases, suspicion was due to an unexplained temporary disappearance of the victim. There were no significant differences between two study groups (p=0.13) (table 3).

The suspicion was predominantly communicated to health services (39.1%, n=93) and police (28.6%, n=68). In only 5.5% (n=13) of the cases, it had been reported to the commission for the protection of children and juvenile and in 3.4% (n=8) to other entities. Information was not obtained in 23.5% of cases (n=56). There are significant differences between the two groups of alleged perpetrators (p<0.05), showing that the report to health services (48.6%, n=67) is more often performed when the alleged offender is under 16 years old, while with older offenders, reports are usually made directly to the police (34%, n=34) (table 3).

4. Characterization of the alleged offense

The type of practices mostly described were fondling (26.1%, n=62). The vaginal penetration was reported in 18.1% (n=43) patients, anal penetration by 13% (n=31), the oral penetration in 4.2% (n=10), attempt to anal, vaginal or oral penetration in 11.8% (n=28) and multiple penetrations (anal and / or vaginal and / or oral) in 7.6% (n=18). There were no statistically significant differences between the two study groups (p=0.7) (table 4).

The alleged offenses occurred in 18.5% (n=44) of the cases in the perpetrator's home, 15.5% (n=37) in the perpetrator and the victim's home, in 13.9% (n=33) in an isolated place and in 12.6% (n=30) in the victim's home. In 5% (n=12) of the cases, the location of the alleged offense was the home of relatives and 5.9% (n=14) was another place (4 in a public toilets, 3 on camping, 1 in the beach, 2 in the building where the victim lived, 1 in a friend's house and 1 in a public space not specified). There were significant differences between the groups (p<0.05). Among the under 16-year-old alleged offenders offenses tended to occur more in the house where they both lived (18.1%, n=25) or in the house of the perpetrator (15.9%, n=22), whereas in the older group of offenders the offense occurred more in the home of the perpetrator (22.0%, n=22) or in the victim's home (18%, n=18), not in the house where they both lived (table 4).

Regarding the frequency of sexual practices, 47.9% (n=114) of the cases were a single episode and 24.4% (n=58) were sporadic assaults. Only in 2.9% (n=7) of cases there was an assault perpetrated regularly. Information was not obtained in 24.8% (n=59) of cases. There were no significant differences between the two groups (p=0.73) (table 4).

Physical violence occurred in 21.4% (n=51) of the situations and verbal threats or threats with weapons occurred in 11.3% (n=27). The victims were lured in only 4.2% (n = 10) of the cases and in these situations money, playstation games, rackets, cocaine, chewing gum were used as an alluring factor, but this information was not obtained in 63% (n=150) of the cases. No significant statistical differences were found between groups (p=0.75) (table 4).

5. Characterization of forensic medical evaluation

The time interval between the alleged offense and the forensic medical evaluation was predominantly 72 hours or more (72.7%, n=173) and there were no statistically significant differences between the two groups of alleged offenders (p=0.84) (table 5).

In most cases no injuries (72.7%, n=173) were diagnosed. Lesions suggestive of sexual contact were only detected in 14.3 (n=34) of cases and diagnostic lesions were present in 11.8% (n=28) of the situations. In 3 cases the forensic medical evaluation was not conducted because, in one case, the examinee abandoned the local before it was made and in the other two cases the cause was not known. Lesions suggestive of contact

were detected in 18.2% (n=25) in the group of offenders under 16 years and only 9.2% (n=9) in the other group. These differences were statistically significant (p<0.05) (table 5).

Studies in genetics and forensic biology for the analysis of DNA took place in 16.8% of cases (n=40). From the total cases, in only 4.6% (n=11) a different genetic profile of the victim was obtained in biological samples collected from the body or clothing of the victim. The results obtained in the two groups were not statistically significant (p=0.67) (table 5).

The toxicological and microbiological studies were conducted in only 0.8% (n=2) and 12.2% (n=29) of all cases respectively. In microbiology no positive result was obtained and in the toxicology results were both positive for the presence of ethanol in blood (<0.05 g/L; in one case the alleged offender was under 16 years and in the other one was more than 16 years). No significant associations were found between microbiological studies and the two groups (p=0.94) (table 5). Regarding the toxicological study, no correlation study was carried out because they were performed in only two cases (table 5).

The forensic interview was conducted in only 13.4% (n=32) of the cases and was always carried out after the forensic medical evaluation. No significant associations were found between the two groups (p=0.33) (table 5).

Based on the analysis of all available information (laboratory test results, physical examinations and forensic interview) the forensic evaluation showed that most of the findings were nonspecific for the diagnosis of sexual offense (85.3%, n=203). Only in 5.0% (n=12) of the cases they were considered diagnostic and 9.7% (n=23) suggestive of sexual assault. Among both groups of offenders there were no statistically significant differences in this field (p=0.33) (table 5).

6. Characterization of legal outcomes

Regarding the analysis of legal outcomes, in 67.6% (n=161) of the cases it was not possible to obtain this information and in 12.6% (n=30) of cases the offender was under 12 years of age and therefore there was not any kind of legal outcome to be analyzed. However in cases in which it was possible to obtain the judicial decision (n=47; 19.7%), these revealed that 57.4% (n=27) of these cases were filed, 38.3% (n=18) were charged and trialed and in 4.3% (n=2) of the situations the process was temporarily suspended

(figure 1). There were no statistically significant differences between the two groups of the alleged offenders (p=0.41) (table 6).

The most common reason for filing was withdrawn by the victim or those responsible for the complaints (55.5%, n=15) (figure 1). The filling of the cases were due to the lack of evidence in 37.7% (n=10) of these cases (figure 1).

In the charges, the crime that was more often applied was "child abuse" - Article 171 of the Criminal Code (66.7%, n=10).

In trialed cases (n=18), 3 were acquitted (all the offenders were 16 or more) and 83.3% (n=15) convicted (figure 1).

It was used a punitive-educational measure in the under 16 years old convicted offenders (60%, n=9) (figure 1). In the cases of older offenders, in 26.7% a suspended sentence was used (mean=23, median=22.5, minimum=12, maximum=34, SD=10.8), in one case a prison sentence of 5 years and 5 months was applied (a case involving rape and robbery of an 81-year-old elderly woman by an 17-year-old) and in another one security measures were defined (figure 1).

When punitive-educational measures were applied, in 44.4% (n=4) of the cases an educational support was implemented, in one case internment in an education center for 12 months was chosen and in another one imposing obligations (medical-psychological attendance for 6 months) (figure 1). The average time elapsed between the forensic medical evaluation and the final adjudication was 12.8 months (minimum=14 days, maximum=55.5 months, SD=10.6 months), although in filed or provisionally suspended cases this average time was 9 months and in the judged cases 17.8 months.

Discussion

In recent years it has been paid more attention to the existence of sex offenders who are minors and it has been gradually abandoned the idea that these behaviors are characteristic of the age. Between 2004 and 2010 in Portugal, sex offenders under 18 years accounted for 10.7% of all the sexual offenses reported and examined in the north forensic medical services, however it was not possible to get the age of the offender in all cases, so this percentage may be below its real value. This value is slightly lower than that reported in international studies, which show a value of at least 20% ^{1, 4, 11}.

This may be due to several factors such as victim under-reporting and acquaintances under-reporting ^{9, 12}. Perhaps in Portugal the common belief that "boys will be boys" is still very present and society in general is still not keen on this type of situation. Therefore society norms regarding aggressive male sexual behavior may be a source of bias ⁸.

A lot of effort has been employed in trying to identify psychological, behavioral, and environmental factors which predispose these children or adolescents to sexually offend. As a result, a long list of personality characteristics, family dynamics, demographic factors, life experience, delinquent behaviors and offense characteristics associated with adolescent sexual offending has been generated in the research literature ¹⁸. Nevertheless while much more is known more researchers come to the conclusion that that group is very heterogeneous ¹⁸.

The major limitation which this study presents is the lack of information concerning the offender, since all the data we have are provided by the victims or their companions or guardians, not being the offender evaluated. In this study the offenders were mostly under 16 years old (58%) and they were mostly male (98.3%), verifying the presence of only four female offenders, being in agreement with other studies ^{9, 12, 13}.

Taking into account the group of female offenders, the data scarcity of this group could be for several causes: disagreements about the definition of offense by females, seeing that offense often focus on physical evidence, and instances of female offense may be less likely to produce such evidence, which can lead, for example, to less condemnation of sexual activity between a female adolescent and a young boy than between a male adolescent and a young girl; social beliefs about juvenile females' behavior and parental denial about the behavior of these girls ^{12, 13}. What also contributes to this data lack is the fact that many female offenders often act while in the role of a caretaker or babysitter and they manage to hide their behavior for a long period of time ^{12, 13}.

Regarding the occupation pursued by the perpetrator was obtained little information (82.4% of cases had no information), but when it existed most were students, which is consistent with other studies ⁹. The majority of the offenders had no previous relevant background (94.1%). However 3.8% of the offenders were referred to having a previous history of sexual assault and 2.1% history of other deviant behavior. Other researches show that even 50% of these offenders have already presented evidence of committed prior sexual offenses (convicted or not) ^{6, 9, 12}. Up to 30% of

other delinquents behaviors are described in these offenders, but not more than in other juvenile offenders ^{6, 9, 12}.

In most cases the offender knew the victim, 34.9% was a family member and 62.6% was just an acquaintance. These data confirm other studies that claim that most perpetrators are known to the victims, although there are some studies of minor offenders that show higher percentages of intra-familial offenders (48-67%) ^{5, 11, 12}. Comparing this study with studies of adult offenders, there is also a higher percentage of intra-familial offenses in these studies than in the studies with minor offenders ^{19, 20}. Sexual offenses that occur within the family acquire a more serious outcome because victims are younger, the attacks are less visible, the victim experiences a breach of trust and a profound loss of safe home environment ^{3, 19}. A further delay until the achievement of the forensic medical evaluation occurred more in the intra-familial cases, and when this is done, it is usually associated with a lower degree of physical, genetic and biological evidence ¹⁹. The high percentage of offenders, who are not relatives of the victims, shows the ease with which offenders have access to children outside the family and can develop a trusting relationship as neighbors, family friends, or sitters ¹¹.

The analysis of the alleged sexual offenses revealed that most victims are female (64.3%) and are younger than 12 years old (60.1%), confirming other studies ^{8, 12}. It has been shown that younger offenders also hurt younger victims compared with the older offenders (66.7% vs 51%).

The victims were mostly students (77.3%), which is understandable since most were also minors and therefore school age (in Portugal compulsory education goes to the 9th grade, in which children are at least 14 years old). The information about personal background shows that 70.6% of the victims don't have anything relevant to be reported. Most of the victims integrate a nuclear family (28.2%) or a foster family/institution (16.8%). However some studies with adults offenders shows that although in most cases the victim also belong to a nuclear family, those who belong to a foster family/ institution is substantially less ²⁰.

Regarding the characterization of the first suspicion, there are few data in the literature. In this study, it was found that in most cases the situation was revealed by a relative of the victim (40.2%), but significant differences were found between the two groups of offenders: when the perpetrator is younger the complaint is more probably made by the family of the victim (44.2%, n=61), and when the offender is older most of

the time the identity of the person who made the complaint is not known. The suspicious fact was the story revealed by the victim (59.2%) and the suspicion was reported in 39.1% of the cases to health services and 28.6% directly to the police. In this last parameter, significant differences between the two groups of offenders were found, namely, when the offender was younger, the complaint was made preferentially to health services (health services: 48.6% vs. police: 24.6 %) and, among the older offenders, complaints were made more equally to the police (34%) and to health services (26%). This difference may happen for two reasons: on the one hand, the fact that the perpetrators are younger and usually known of the victims and their families, what may mean they are more reluctant to report these offenders to the police ¹². On the other hand, as shown above, offenders under 16 offend victims who are younger too, which can lead families to make use of health services in the first instance when any complaint or story is revealed by the victim.

The characteristics of sexual offense have been significant in determining its effects on victims and the presence, degree, and nature of psychopathological conditions afflicting perpetrators ⁵. The type of practices more often described was intrusive sexual practices (vaginal, anal and/or oral penetration - 42.9%) and fondling (26.1%), which are consistent with some studies ^{8, 11, 12}. In studies with adults offenders, the percentage of cases in which occurs an intrusive sexual practice is less than it is in this work ^{19, 20}.

The alleged offenses occurred in most cases as a single episode (47.9%), the duration of the abuse is important because the longer the duration of the abuse the more negative outcomes there will be to the victims ⁵. In the majority (58%) of cases occurred use of physical force (in which information was available). However, this information contradicts data that claim that the main method of coercion used by these offenders is the verbal threats ¹², and others studies that tell us that only one-third of these offenses occur under use of physical force ⁹. These discrepancies show us the heterogeneity of this group, as mentioned above ¹⁸. The percentage of physical violence determined in this study is also superior to that found in studies involving adult abusers ^{19,20}

In this research the alleged offenses occurred in 18.5% of cases at the perpetrator's home, 12.6% at the victim's home and 15.5% at the home where both lived. Existing data suggest that the most common location of the offenses is indoors, as in this study ¹². In regard to this parameter, this study revealed the presence of statistically significant differences between the two groups of offenders, revealing that

the group of young offenders tended to offend more at the home where both lived (18, 1%) or at the home of the perpetrator (15.9%), while in the other group the offense tended to occur in the offender's home (22.0%) or at the victim's house (18%), occurring in fewer cases in the house that both share (12%). Consequently, we may think that in the younger group of offenders, perpetrator and victim live together more often, and that it is this proximity which may lead to the choice of the victim.

In relation to the medical evaluation, this occurred in most cases more than 72 hours after the offense had happened, which leads to the study of DNA which becomes more difficult. Moreover, in many cases, the type of offense does not justify the demand for sperm or semen, which may explain the low rate of genetic studies conducted (16.8%). Thus, it is a lot of pressure placed on physical examination and results that might have, revealing or not, the evidence that these attacks have occurred.

In this paper we did not detect any type of injury in 72.7% of cases, which confirms the recent literature that has stressed that a normal physical examination is common in child sexual abuse ¹¹. However the absence of physical signs can also be the result of the forensic examination delays. Therefore, performing the forensic medical evaluation as soon as possible improves the chance of finding supportive ¹⁹. Even if the offense provoked injuries, it is known that lesions of the anogenital tissues heal quickly and can be difficult to detect after weeks or months ^{21,22}.

In addition the studies also report that the reports of the victims, especially when they are very young, may not mention exactly what happened, for example, when a child says "he put his thing in my private", may not mean that full penetration occurred ^{15, 21}. Nonetheless, the absence of signs of injury in a child who gives a clear disclosure of sexual abuse does not mean that the child was not abused in the manner he or she described ²². In these situations, the medical diagnosis of sexual offense should be made based on history with the clear statement by the victim and a psychological and social assessment of the family and the abuser ¹⁹. But careful need to be taken with this type of evidence, it will be only reliable if the victim's information is spontaneous and uncontaminated ¹⁹. In this research the forensic interview was conducted in only 13,4% of all cases, and always carried out after the forensic medical evaluation. In studies involving adults offenders, the percentage of forensic interview performed was considerably higher ²⁰.

The toxicological and microbiological studies were conducted in only 0.8% and 12.2% of all cases, respectively. In microbiology any positive result was obtained and in

the toxicology results were both positive for the presence of ethanol in blood. Microbiological analysis is important because it confirms the presence of infection and contact with infected bodily secretions, most likely to have been sexual in nature ²². When certain infections are present in certain conditions, these can be considered diagnostic ²², but, in the submitted sample, none of microbiological tests came back positive.

Based on the analysis of all available information (laboratory test results, physical examinations and forensic interview), the forensic findings were in order to consider most of them nonspecific for the diagnosis of sexual offense (85.3%). Only in 5.0% of the cases they were considered diagnostic.

In cases that result in injuries or traces, there are few indicators currently considered diagnostic. Indeed, except for pregnancy and the presence of semen on the victim's body, all other indicators are considered suggestive of sexual offense or nonspecific ²¹⁻²³. Thus only in few situations it is categorically recognized as sexual assault, as in this case.

The analysis of legal outcomes revealed that, in cases in which it was possible to determine this parameter, 57.4% of these were filed most for withdrawal by the victim or their responsible (55.6%). In 38.3% of the cases they were charged and trialed. The literature on judicial decisions indicates that the majority of child sexual abuse cases are filed for lack of evidence ^{24, 25}, the same is true in studies with adult offenders ²⁰. It is also observed large variations in rates of prosecution of children sexual abuse, mainly in more recent studies, in which these vary between 28% and 94% ²⁵. These variations can be explained by differences in sampling and study methodologies, which may be influenced by cultural, social and legal issues ². Nevertheless it is clear that in the case of minor offenders, the literature says that the number of these offenders who actually reach the court is very small ^{24, 26}. Having found such a high percentage of filed cases (54%) confirms that. These data could result from several causes: difficulty in prosecuting cases having very young victims, lack of corroborative evidence, victims hesitancy or inability to express themselves or to identify the perpetrator, and failure of the family to cooperate with criminal prosecution, particularly when the alleged offender is young and likely to be a family member or otherwise know to them ^{24, 26}. This last aspect may be related to the high number of dropouts and it may be responsible for the low number of reports of this kind of situations.

In 4% of cases trials were provisionally suspended, in accordance with Article 281 of the Portuguese Code of Penal Procedure. This article provides that if a suspect has never been convicted of a crime of sexual nature, not previously benefited from this measure, and obey all rules of conduct that are imposed on, the public prosecutor, with the concurrence of Judge of instruction and the suspected, may suspend the proceedings temporarily, to a maximum of five years, and then archive it.

The alleged offenders were convicted in 66.7% of defendants (12% of judgments obtained). These results are consistent with other studies of sexual abuse of children that reveal the probability of conviction is high in cases that are charged and tried ^{25, 27}. From the cases convicted, in 60% was applied a punitive-educational measure due to the offender's age (less than 16 years). In the group of older offenders there was penalty of imprisonment in one case, which was 5 years and 5 months. One study reveals that after adjudication most juvenile sex offenders (80%) are placed in community settings, the other 20% are remanded to residential treatment centers or are incarcerated ⁶.

As stated before, young people over 16 years and under the age of 21 are subject to specific criteria - *Rules of young adults*. These criteria specify that, when applicable the term of imprisonment, the judge should sooth the, when they have serious reasons to believe that the attenuation will undertake advantages for the social reintegration of the young offender. This may be one explanation for having only one case of imprisonment in the group of convicted offenders.

Although there may always be a small percentage of youth whose crimes require incarceration, it seems worthwhile to consider many more youth could be safely maintained in their own homes. The literature indicates that grouping antisocial youth together (whether for treatment or incarceration) carries with it the risk of actually increasing recidivism rates because youth who view themselves as "delinquent" are less likely to change patterns of offending ^{1, 28}. Thus it seems Portugal is doing well to judge young sexual offenders, because, according to the results of this study, few cases lead to incarceration of young people, giving primacy to keep them in a more favorable environment. However more work must be done in this area in order to better understand how these youngsters are prosecuted and accompanied during this process.

The average time elapsed between the medico-legal and judicial outcome was 12.8 months. Note, however, that this average value may be higher since there weren't

obtained 67.6% of cases required, many of which were not available for not having been completed yet.

The present study has some limitations, one of which is its retrospective nature, which did not allow collecting data on all the variables. We must also bear in mind that this study is based on forensic reports in which the examinee is the victim and not the alleged offender, and so, all information about it is given by the victims, through their legal representatives or by others who report cases, and can be therefore a source of bias.

Conclusions

The results of this study allowed us to conclude that:

- 1. Sex offenders under 18 years accounted for 10.7% of all the sexual offenses reported and examined in the Portuguese north forensic medical services, verifying a lower percentage than in international studies;
- 2. These offenders are mostly males (97.9%), aged less than 16 years (58%) and known of the victims (34.7% the offender is a member of family and a 62.8% acquaintances);
- 3. The victims of this group of offenders are 11 years in average, most female (64.4%), students (77%), without significant history of disease or deviant behavior (70.6%);
- 4. The first suspicion is in most cases the disclosure made by the victim (59%) to a family member (40.2%) and reported to health services (38.9%) or police (28.9%);
- 5. Regarding the alleged offense, this is usually a single episode (47.7%), in which a significant percentage of cases physical force is used to dominate the victim. The alleged offense can occur in several places, the most common being the home of the offender (18.4%) or the home of both parties (15.5%). Most victims were allegedly abused by fondling (26.1%) or vaginal penetration (18.1%);
- 6. Most victims performed the forensic medical evaluation 72 hours or more after the injury has occurred, not having verified the presence of physical consequences in most cases (72.4%) and only in 4.6% of the cases could be identified a genetic profile different from the victim;
- 7. The majority of the cases in which it was possible to obtain the judicial outcome was filed (57.4%) for withdrawn. In the accused cases, 83.3% were convicted.

In these, in 60% was applied a punitive-educational measure (in offenders under the age of 16) which was mainly an educational support (60%, n=9), and in the other aggressors the suspended sentence (averaged 23 months) was the verdict chosen in the majority of the cases. The average time elapsed between the medical-legal examination and final adjudication was 12.8 months, and, in cases filed or provisionally suspended, this average time was 9 months and in the judged cases 17.8 months;

8. The age of the offender showed a statistically significant relationship with: the victim's age, the individual who first suspected the offense, the entity to whom the complaint was made, the local where the offense occurred and type of injury found in the forensic evaluation.

These results when compared to studies with adult or minor offenders revealed lower intra-familial abuse rates, higher prevalence of physical violence. Intrusive sexual practices were higher when compared to studies with adult offenders.

Despite all the data from this study, the minor offenders remain a complex area of research, and the social perception of this group remains contentious. Since most of the available research regarding the sexual violence has been conducted with adult offenders, especially in Portugal, where no study was published in this area till now, additional studies will be necessary to better understand the characteristics of the children and adolescents sex offenders and all variables that surround them. This study may promote the creation of strategies for detection, diagnoses and prevention of cases, victims' protection and the treatment and/or rehabilitation of offenders.

Ethical Approval

This study has been carried out in accordance with ethica rules and it has not been submitted to Ethical Approval because it is a retrospective case review in which no invasive studies were carried out nor identification of the individuals were given.

Bibliography

1. Becker JV, Hicks SJ. Juvenile sexual offenders: Characteristics, interventions, and policy issues. 2003. p. 397-410.

- 2. WORLD HEALTH ORGANIZATION. Guidelines for medico-legal care for victims of sexual violence. WHO Library Cataloguing-in-Publication Data. 2003.
- 3. Magalhães T, Carneiro De Sousa MJ, Gomes Da Silva A, Pinto Da Costa D, Grams AC, Ribeiro C, et al. Child sexual abuse: A preliminary study. Journal of Clinical Forensic Medicine. 1998;5(4):176-82.
- 4. Vitacco MJ, Caldwell M, Ryba NL, Malesky A, Kurus SJ. Assessing risk in adolescent sexual offenders: Recommendations for clinical practice. Behavioral Sciences and the Law. 2009;27(6):929-40.
- 5. Miranda AO, Corcoran CL. Comparison of perpetration characteristics between male juvenile and adult sexual offenders: preliminary results. Sexual abuse : a journal of research and treatment. 2000;12(3):179-88.
- 6. Gerdes KE, Michelle Gourley M, Cash MC. Assessing juvenile sex offenders to determine adequate levels of supervision. Child Abuse and Neglect. 1995;19(8):953-61.
- 7. Andrade JT, Vincent GM, Saleh FM. Juvenile sex offenders: A complex population. Journal of Forensic Sciences. 2006;51(1):163-7.
- 8. Aylwin AS, Clelland SR, Kirkby L, Reddon JR, Studer LH, Johnston J. Sexual offense severity and victim gender preference: A comparison of adolescent and adult sex offenders. International Journal of Law and Psychiatry. 2000;23(2):113-24.
- 9. James AC, Neil P. Juvenile sexual offending: One-year period prevalence study within Oxfordshire. Child Abuse and Neglect. 1996;20(6):477-85.
- 10. Worling JR. Adolescent sibling-incest offenders: Differences in family and individual functioning when compared to adolescent nonsibling sex offenders. Child Abuse and Neglect. 1995;19(5):633-43.
- 11. Allard-Dansereau C, Haley N, Hamane M, Bernard-Bonnin AC. Pattern of child sexual abuse by young aggressors. Child Abuse and Neglect. 1997;21(10):965-74.
- 12. Davis GE, Leitenberg H. Adolescent Sex Offenders. Psychological Bulletin. 1987;101(3):417-27.
- 13. Vick J, McRoy R, Matthews BM. Young female sex offenders: Assessment and treatment issues. Journal of Child Sexual Abuse. 2002;11(2):1-23.
- 14. Elkovitch N, Latzman RD, Hansen DJ, Flood MF. Understanding child sexual behavior problems: A developmental psychopathology framework. Clinical Psychology Review. 2009;29(7):586-98.
- 15. Burton DL. Were adolescent sexual offenders children with sexual behavior problems? Sexual abuse: a journal of research and treatment. 2000;12(1):37-48.

- 16. Ministério da Administração Interna. Relatório anual de segurança interna 2010 Available from: www.mai.gov.pt
- 17. Magalhães T. Aspectos epidemiológicos do abuso. Abuso de Crianças e Jovens Lisboa: Lidel; 2010. p. 23-9.
- 18. Moore T, Franey KC, Geffner R. Introduction: Assessment and treatment of youth who sexually offend: An overview. Journal of Child Sexual Abuse. 2005;13(3-4):1-13.
- 19. Magalhães T, Taveira F, Jardim P, Santos L, Matos E, Santos A. Sexual abuse of children. A comparative study of intra and extra-familial cases. Journal of Forensic and Legal Medicine. 2009;16(8):455-9.
- 20. Jardim P, Matos E, Magalhães T. O impacto da perícia médico-legal na decisão judicial nos casos de abuso sexual de crianças. Estudo preliminar. Revista Portuguesa do Dano Corporal. 2011;22:23-54.
- 21. Adams JA, Harper K, Knudson S, Revilla J. Examination findings in legally confirmed child sexual abuse: It's normal to be normal. Pediatrics. 1994;94(3):310-7.
- 22. Adams JA. Guidelines for medical evaluation of suspected child sexual abuse: 2008 Update. Curr Opin Obstet Gynecol. 2008;20 435-41.
- 23. Pillai M. Genital Findings in Prepubertal Girls: What Can Be Concluded from an Examination? Journal of Pediatric and Adolescent Gynecology. 2008;21(4):177-85.
- 24. Martone M, Jaudes PK, Cavins MK. Criminal prosecution of child sexual abuse cases. Child Abuse and Neglect. 1996;20(5):457-64.
- 25. Patterson D, Campbell R. A comparative study of the prosecution of childhood sexual abuse cases: The contributory role of pediatric Forensic Nurse Examiner (FNE) programs. Journal of Forensic Nursing. 2009;5(1):38-45.
- 26. Brownlie J. 'An Unsolvable Justice Problem'? Punishing Young People's Sexual Violence. Journal of Law and Society. 2003;30(4):506-31.
- 27. Sugue-Castillo M. Legal outcomes of sexually abused children evaluated at the Philippine General Hospital Child Protection Unit. Child Abuse and Neglect. 2009;33(3):193-202.
- 28. Letourneau EJ, Miner MH. Juvenile sex offenders: A case against the legal and clinical status quo. Sexual Abuse: Journal of Research and Treatment. 2005;17(3):293-312.

Tables
Table 1
Characterization of alleged offender

		<16 years (n=138) n (%)	≥ 16 years (n=100) n (%)	p
	Relative	55 (39.9)	28 (28)	0.10
Relationship with	Acquaintance	81 (58.7)	68 (68)	
victim	Unknown	2 (1,4)	4 (4)	
	Sexual offenses	4 (2.9)	5 (5)	0.70
Previous deviant	Other deviant behavior	3 (2.2)	2 (2)	
behavior	None	131 (95)	93 (93)	

Table 2Characterization of the victim

		<16 years (n=138)	≥ 16 years (n=100)	p
		n (%)	n (%)	
Gender	Male	54 (39.1)	31 (31)	0.20
	Female	84 (60.1)	69 (69)	
Age (years)	≤ 12	92 (66.7)	51 (51)	< 0.05
	> 12	46 (33.3)	49 (49)	
	Student	105 (76.1)	79 (79)	0.44
Activity	None	9 (6.5)	9 (9)	
	No information	24 (17.4)	12 (12)	
	Physical handicap	1 (0.7)	1 (1)	0.56
	Mental handicap	4 (2.9)	7 (7)	
Background	Behavior or emotional problems	11 (8)	10 (10)	
	Others	23 (16.7)	13 (13)	
	None	99 (71.7)	69 (69)	
	Nuclear	32 (23.2)	35 (35)	0.26
	Monoparental	18 (13)	10 (10)	
	Combined	13 (9.4)	4 (4)	
	Extended	18 (13)	8 (8)	
Family type	Institution/Foster Family	21 (15.2)	19 (19)	
	Other	1 (0.7)	1 (1)	
	No information	35 (25.4)	23 (23)	

Table 3

Characterization of the first suspicion

		<16 years (n=138)	≥ 16 years (n=100)	p
		n (%)	n (%)	
Person who	Relative	61 (44.2)	34 (34)	< 0.05
suspect	Other person	34 (24.6)	17 (17)	
	No information	43 (31.2)	49 (49)	
	Health services	67 (48.6)	26 (26)	< 0.05
	Police	34 (24.6)	34 (34)	
Report	CPCJ	8 (5.8)	5 (5)	
	Others	4 (2.9)	4 (4)	
	No information	25 (18.1)	31 (31)	
	Fact revealed for the victim	80 (58)	61 (61)	0.13
	Suggestive signs or symptoms	19 (13.8)	9 (9)	
	Eyewitness	24 (17.4)	11 (11)	
Suspicion	Temporary disappearance	2 (1.4)	7 (7)	
	Sexual offenses against others	4 (2.9)	2 (2)	
	No information	9 (6.5)	10 (10)	

Table 4Characterization of the alleged offense

		<16 years	≥ 16 years	p
		(n=138)	(n=100)	
		n (%)	n (%)	
	Fondling	34 (24.6)	28 (28)	0.7
	Vaginal, anal or oral attempt of penetration	15 (10.9)	13 (13)	
	Anal penetration	21 (15.2)	10 (10)	
	Vaginal penetration	23 (16.7)	20 (20)	
Type	Oral penetration	5 (3.6)	5 (5)	
	Multiple penetration	13 (9.4)	5 (5)	
	No information	27 (19.6)	19 (19)	
	Victim's home	12 (8.7)	18 (18)	< 0.05
	Offender's home	22 (15.9)	22 (22)	
	Victim's and offender's home	25 (18.1)	12 (12)	
	Isolated place	18 (13)	15 (15)	
Place	School	16 (11.6)	2 (2)	
	No information	28 (20.3)	22 (22)	
	Other	7 (5.1)	7 (7)	
	Relative's home	10 (7.2)	2 (2)	
	Verbal threats	13 (9.4)	14 (14)	0.75
	Physical violence	30 (21.7)	21 (21)	
Circumstances	Inducement	6 (4.3)	4 (4)	
	No information	89 (64.5)	61 (61)	
	Unique	69 (50)	45 (45)	0.73
	Regular	3 (2.2)	4 (4)	
Frequency	Sporadic	32 (23.2)	27 (27)	
	No information	34 (24.6)	24 (24)	

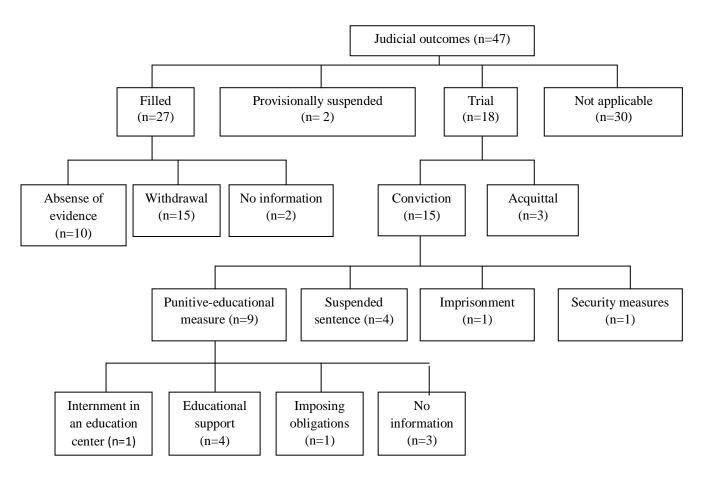
Table 5Characterization of medical forensic evaluation

		<16 years (n=138)	≥ 16 years (n=100)	p
		n (%)	n (%)	
Delay between occurrence	<72 hours	37 (26.8)	28 (28)	0.84
and examination	\geq 72 hours	101 (73.2)	72 (72)	
	Suggestive	25 (18.1)	9 (9)	< 0.05
Injury	Unspecific	21 (15.2)	7 (7)	
	None	91 (65.9)	82 (82)	
	No evaluation	1 (0.7)	2 (2)	
Genetics and forensic	Positive	6 (4.3)	5 (5)	0.67
biology	Negative	19 (13.8)	10 (10)	
	No realized	113 (81.9)	85 (85)	
Forensic interview	Fulfilled	16 (11.6)	16 (16)	
	Not fulfilled	122 (88.4)	84 (84)	
	Diagnostic	9 (6.5)	3 (3)	0.33
Conclusions	Suggestive	15 (10.9)	8 (8)	
	Unspecific	114 (82.6)	89 (89)	

Table 6Characterization of legal outcomes

	<16 years (n=24)	≥ 16 years (n=23)	p
	n (%)	n (%)	
Filled	16 (66.7)	11(47.8)	0.41
Provisionally suspended	1 (4.2)	1 (4.3)	
Trial	7 (29.2)	11(47.8)	

Figure 1
Legal outcomes



ANEXOS

Anexo 1: Regras de Publicação

(Revista de referência: *Journal of Forensic and Legal Medicine*)

INTRODUCTION

Types of paper

The following types of articles will be considered for publication:

Original Communication: new research, previously unpublished.

Review: detailed review of specific subject, backed up by full reference list and exploring all aspects of subject.

Clinical Practice: review backed up by relevant literature of specific aspects of clinical practice.

Short Report: new research or clinical issue, straightforward idea, simple methodology, concise takehome message.

Case Reviews: one or two related cases with specific message, backed up by broad review of related literature.

Learning Point: single case where outcome identifies or reinforces an important clinical, pathological or legal issue.

Case Reports: one or two related cases with specific unambiguous message that needs little discussion, small number of references.

Personal View: unreferenced, discursive paper on aspect of treatment, care, management that impacted directly on author.

Leading Article: invited article by an authority on a particular issue.

Editorial: topical polemic on an issue of the day, some commissioned, some submitted.

Conference Report: personal views of conferences, symposia or meetings of relevance to journal readership.

Letter to the Editor: comment or useful critique on material published in the journal. The decision to publish submitted letters rests purely with the Editor-in-Chief.

Book Review: review of relevant books which are not more than 2 years old. Unsolicited reviews will not usually be accepted, but suggestions for appropriate books for review should be sent to the Editor-in-Chief.

Postcard: unreviewed personal opinion on topical issues.

Consideration will be given by the Editor to other categories of article that do not fit into the above.

Contact details for submission

Authors should send queries concerning the submission process or journal procedures to AuthorSupport@elsevier.com. Authors can check the status of their manuscript within the review procedure using Elsevier Editorial System.

Page charges

This journal has no page charges.

BEFORE YOU BEGIN

Ethics in publishing

For information on Ethics in publishing and Ethical guidelines for journal publication see http://www.elsevier.com/publishingethics and http

Policy and ethics

The work described in your article must have been carried out in accordance with *The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans* http://www.wma.net/en/30publications/10policies/b3/index.html; *EU Directive 2010/63/EU for animal experiments* http://ec.europa.eu/environment/chemicals/lab_animals/legislation_en.htm; *Uniform Requirements for manuscripts submitted to Biomedical journals* http://www.icmje.org. This must be stated at an appropriate point in the article.

Conflict of interest

All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential conflicts of interest include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/ registrations, and grants or other funding. See also http://www.elsevier.com/conflictsofinterest.

Submission declaration

Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere including electronically in the same form, in English or in any other language, without the written consent of the copyright-holder.

Authorship

All authors should have made substantial contributions to all of the following: (1) the conception and design of the study, or acquisition of data, or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, (3) final approval of the version to be submitted.

Changes to authorship

This policy concerns the addition, deletion, or rearrangement of author names in the authorship of accepted manuscripts:

Before the accepted manuscript is published in an online issue: Requests to add or remove an author, or to rearrange the author names, must be sent to the Journal Manager from the corresponding author of the accepted manuscript and must include: (a) the reason the name should be added or removed, or the author names rearranged and (b) written confirmation (e-mail, fax, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed. Requests that are not sent by the corresponding author will be forwarded by the Journal Manager to the corresponding author, who must follow the procedure as described above. Note that: (1) Journal Managers will inform the Journal Editors of any such requests and (2) publication of the accepted manuscript in an online issue is suspended until authorship has been agreed.

After the accepted manuscript is published in an online issue: Any requests to add, delete, or rearrange author names in an article published in an online issue will follow the same policies as noted above and result in a corrigendum.

Copyright

Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing information this Agreement' (for more on and copyright see http: //www.elsevier.com/copyright). Acceptance of the agreement will ensure the widest possible dissemination of information. An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement. Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations (please consult http://www.elsevier.com/permissions). If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases: please consult http: //www.elsevier.com/permissions.

Unpublished material

Material in unpublished letters and manuscripts is also protected and must not be published unless permission has been obtained.

Retained author rights

As an author you (or your employer or institution) retain certain rights; for details you are referred to: http://www.elsevier.com/authorsrights.

Role of the funding source

You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated. Please see http://www.elsevier.com/funding.

Funding body agreements and policies

Elsevier has established agreements and developed policies to allow authors whose articles appear in journals published by Elsevier, to comply with potential manuscript archiving requirements as specified as conditions of their grant awards. To learn more about existing agreements and policies please visit http://www.elsevier.com/fundingbodies.

Language and language services

Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who require information about language editing and copyediting services pre- and post-submission please visit http://webshop.elsevier.com/languageservices or our customer support site at http://support.elsevier.com for more information.

Submission

Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts source files to a single PDF file of the article, which is used in the peer-review process. Please note that even though manuscript source files are converted to PDF files at submission for the review process, these source files are needed for further processing after acceptance. All correspondence, including notification of the Editor's decision and requests for revision, takes place by e-mail removing the need for a paper trail.

Submit your article

Please submit your article via http://ees.elsevier.com/jflm

PREPARATION

Article structure

Where appropriate the manuscript should follow the scheme described below: (1) title page, (2) summary and keywords, (3) text, (4) references, (5) tables, (6) captions to illustrations, (7) illustrations.

Subdivision - unnumbered sections

Divide your article into clearly defined sections. Each subsection is given a brief heading. Each heading should appear on its own separate line. Subsections should be used as much as possible when cross referencing text: refer to the subsection by heading as opposed to simply 'the text'. Headings for experimental papers should follow the usual conventions: Introduction, Methods, Results, Discussion, Acknowledgments. Other papers may be subdivided as the authors desire. The use of headings enhances readability.

Essential title page information

- *Title*. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
- Author names and affiliations. Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.
- Corresponding author. Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. Ensure that telephone and fax numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address. Contact details must be kept up to date by the corresponding author.
- *Present/permanent address*. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Abstract

A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

Keywords

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

Abbreviations

Avoid abbreviations in the title and abstract. All unusual abbreviations should be fully explained at their first occurrence in the text.

Acknowledgements

Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Nomenclature and units

Proprietary names of drugs, instruments etc. should be indicated by the use of initial capital letters. All measurements should be expressed in SI or SI-derived units.

Artwork

Electronic artwork

General points

- Make sure you use uniform lettering and sizing of your original artwork.
- Save text in illustrations as 'graphics' or enclose the font.
- Only use the following fonts in your illustrations: Arial, Courier, Times, Symbol.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Provide captions to illustrations separately.
- Produce images near to the desired size of the printed version.
- Submit each figure as a separate file.

A detailed guide on electronic artwork is available on our website:

http://www.elsevier.com/artworkinstructions

Formats

Regardless of the application used, when your electronic artwork is finalised, please 'save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):

EPS: Vector drawings. Embed the font or save the text as 'graphics'.

TIFF: Color or grayscale photographs (halftones): always use a minimum of 300 dpi.

TIFF: Bitmapped line drawings: use a minimum of 1000 dpi.

TIFF: Combinations bitmapped line/half-tone (color or grayscale): a minimum of 500 dpi is required.

If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is'.

Please do not:

- Supply files that are optimised for screen use (e.g., GIF, BMP, PICT, WPG); the resolution is too low;
- Supply files that are too low in resolution;
- Submit graphics that are disproportionately large for the content.

Where illustrations must include recognisable individuals, living or dead and of whatever age, great care must be taken to ensure that consent for publication has been given. It is the authors' responsibility to obtain written permission to reproduce borrowed material (illustrations and tables) from the original publishers and authors.

Color artwork

Please make sure that artwork files are in an acceptable format (TIFF, EPS or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color on the Web (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article. Please indicate your preference for color: in print or on the Web only. For further information on the preparation of electronic artwork, please see http://www.elsevier.com/artworkinstructions.

Please note: Because of technical complications which can arise by converting color figures to 'gray scale' (for the printed version should you not opt for color in print) please submit in addition usable black and white versions of all the color illustrations.

Tables

Number tables consecutively in accordance with their appearance in the text. Place footnotes to tables below the table body and indicate them with superscript lowercase letters. Avoid vertical rules. Be sparing in the use of tables and ensure that the data presented in tables do not duplicate results described elsewhere in the article.

Web references

Refrain from using *online references* if possible. When referring to internet sources, for example Wikipedia, please state so clearly, and indicate if this information can be checked and on which date you visited this online source.

Reference style

Text: Indicate references by superscript numbers in the text. The actual authors can be referred to, but the reference number(s) must always be given.

List: Number the references in the list in the order in which they appear in the text.

Examples:

Reference to a journal publication:

1. Van der Geer J, Hanraads JAJ, Lupton RA. The art of writing a scientific article. *J Sci Commun* 2010;**163**:51–9.

Reference to a book:

- 2. Strunk Jr W, White EB. *The elements of style*. 4th ed. New York: Longman; 2000. Reference to a chapter in an edited book:
- 3. Mettam GR, Adams LB. How to prepare an electronic version of your article. In: Jones BS, Smith RZ, editors. *Introduction to the electronic age*, New York: E-Publishing Inc; 2009, p. 281–304.

Note shortened form for last page number. e.g., 51–9, and that for more than 6 authors the first 6 should be listed followed by 'et al.' For further details you are referred to 'Uniform Requirements for Manuscripts submitted to Biomedical Journals' (J Am Med Assoc 1997;277:927–34) (see also http:

 $/\!/ www.nlm.nih.gov/bsd/uniform_requirements.html).$

Video data

Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include these within the body of the article.

This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the files in one of our recommended file formats with a preferred maximum size of 50 MB. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect: http: //www.sciencedirect.com. Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages http: at //www.elsevier.com/artworkinstructions.

Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

Supplementary data

Elsevier accepts electronic supplementary material to support and enhance your scientific research.

Supplementary files offer the author additional possibilities to publish supporting applications, highresolution images, background datasets, sound clips and more. Supplementary files supplied will be published online alongside the electronic version of your article in Elsevier Web products, including ScienceDirect: http://www.sciencedirect.com. In order to ensure that your submitted material is directly usable, please provide the data in one of our recommended file formats. Authors should submit the material in electronic format together with the article and supply a concise and descriptive caption for each file. For more detailed instructions please visit our artwork instruction pages at http://www.elsevier.com/artworkinstructions.

Submission checklist

The following list will be useful during the final checking of an article prior to sending it to the journal for review. Please consult this Guide for Authors for further details of any item.

Ensure that the following items are present:

One author has been designated as the corresponding author with contact details:

- E-mail address
- Full postal address
- Telephone and fax numbers

All necessary files have been uploaded, and contain:

- Keywords
- All figure captions
- All tables (including title, description, footnotes)

Further considerations

- Manuscript has been 'spell-checked' and 'grammar-checked'
- References are in the correct format for this journal
- All references mentioned in the Reference list are cited in the text, and vice versa
- Permission has been obtained for use of copyrighted material from other sources (including the Web)
- Color figures are clearly marked as being intended for color reproduction on the Web (free of charge) and in print, or to be reproduced in color on the Web (free of charge) and in black-and-white in print
- If only color on the Web is required, black-and-white versions of the figures are also supplied for printing purposes

For any further information please visit our customer support site at http://support.elsevier.com.

AFTER ACCEPTANCE

Use of the Digital Object Identifier

The Digital Object Identifier (DOI) may be used to cite and link to electronic documents. The DOI consists of a unique alpha-numeric character string which is assigned to a document by the publisher upon the initial electronic publication. The assigned DOI never changes. Therefore, it is an ideal medium for citing a document, particularly 'Articles in press' because they have not yet received their full bibliographic information. The correct format for citing a DOI is shown as follows (example taken from a document in the journal *Physics Letters B*): doi:10.1016/j.physletb.2010.09.059

When you use the DOI to create URL hyperlinks to documents on the web, the DOIs are guaranteed never to change.

Proofs

One set of page proofs (as PDF files) will be sent by e-mail to the corresponding author (if we do not have an e-mail address then paper proofs will be sent by post) or, a link will be provided in the e-mail so that authors can download the files themselves. Elsevier now provides authors with PDF proofs which can be annotated; for this you will need to download Adobe Reader version 7 (or higher) available free from http://get.adobe.com/reader. Instructions on how to annotate PDF files will accompany the proofs (also given online). The exact system requirements are given at the Adobe site: http://www.adobe.com/products/reader/tech-specs.html.

If you do not wish to use the PDF annotations function, you may list the corrections (including replies to the Query Form) and return them to Elsevier in an e-mail. Please list your corrections quoting line number. If, for any reason, this is not possible, then mark the corrections and any other comments (including replies to the Query Form) on a printout of your proof and return by fax, or scan the pages and e-mail, or by post. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. We will do everything possible to get your article published quickly and accurately – please let us have all your corrections within 48 hours. It is important to ensure that all corrections are sent back to us in one communication: please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility. Note that Elsevier may proceed with the publication of your article if no response is received.

Offprints

The corresponding author, at no cost, will be provided with a PDF file of the article via e-mail. For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. The PDF file is a watermarked version of the published article and includes a cover sheet with the journal cover image and a disclaimer outlining the terms and conditions of use.

Author orders

When your article is published, you can commemorate your publication with printed author copies of the journal issue, customized full-color posters, extra offprints, and more. Please visit http://webshop.elsevier.com to learn more.

AUTHOR INQUIRIES

For inquiries relating to the submission of articles (including electronic submission) please visit this journal's homepage. Contact details for questions arising after acceptance of an article, especially those relating to proofs, will be provided by the publisher. You can track accepted articles at http://www.elsevier.com/trackarticle. You can also check our Author FAQs (http://www.elsevier.com/authorFAQ) and/or contact Customer Support via http://support.elsevier.com.