

## Forensic Medicine Practices and Gynecological Evaluation in Sexual Assault Victims: Current Practices in Turkey

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### ABSTRACT

Sexual assault is a significant crime with profound physical and psychological effects on victims. Forensic and gynecological examinations of sexual assault victims are crucial for both providing medical care and accurately collecting evidence. During these examinations, injuries to the victims' bodies must be meticulously documented to ensure reliable evidence for legal proceedings. In the evidence collection process, biological samples such as blood, semen and saliva must be collected and stored using appropriate techniques. Victims of sexual assault are at a heightened risk of sexually transmitted infections (STIs) and unwanted pregnancy. Consequently, victims should receive prophylactic treatment against STIs and emergency contraception should be provided to women at risk of pregnancy. In gynecological examinations, detailed inspections of the genital and anal regions, including the hymen, are essential, with advanced techniques like colposcopy utilized to detect microtraumas. Forensic reports directly impact the success of judicial processes; therefore, forensic medicine and gynecology professionals must enhance their expertise and receive additional training to prepare thorough reports. Approaches to sexual assault victims require a multidisciplinary team effort. Gynecologists, forensic medicine specialists, psychologists and social workers should collaborate to support both the physical and psychological recovery of victims.

**Keywords:** Forensic Medicine; Gynecological Forensic Examination, Sexual Violence

### 1. Introduction

Sexual assault encompasses any form of sexual behavior intended to achieve sexual gratification, imposed on an individual in situations where consent is absent or not acknowledged, through means such as threats, physical force, intimidation, deception or manipulation and is deemed socially unacceptable<sup>1</sup>. The World Health Organization (WHO) defines sexual crimes as any act, attempt or sexually suggestive statement that causes physical, mental or social harm without the individual's consent or in circumstances where consent cannot be given<sup>2</sup>.

Sexual assault can occur in various settings and under different circumstances, affecting both men and women. Although it is a serious issue impacting individuals across all segments of society, it is more commonly observed in communities with low socioeconomic status<sup>3</sup>, in underdeveloped and developing countries, among foreigners, individuals with alcohol or substance dependencies, those with chronic psychiatric disorders<sup>4</sup>, unmarried individuals, rural populations<sup>5,6</sup> and among women and children with comparatively lower self-defense abilities<sup>7</sup>.

Forensic examination in sexual assault cases serves two primary objectives: to provide medical care and guidance to the victim and to document and collect forensic evidence related to the assault. Minimum requirements for examination include assessing the victim for physical trauma, determining whether penetration or force was involved, interviewing the victim and gathering physical evidence. Evidence collection aims to gather physical samples, such as blood, saliva or semen, document the victim's statements about the event, photograph any injuries and conduct toxicological tests to determine if the assault was facilitated by alcohol or drugs<sup>2,8</sup>.

The medical examination conducted to provide care and guidance to the victim should include the assessment and treatment of any injuries, testing for sexually transmitted infections (STIs) and pregnancy and, if necessary, the provision of emergency contraception<sup>9</sup>. Evaluation of sexual assault victims is not limited to physical examination and necessary treatments; a holistic approach that also considers the victims' psychosocial needs is essential. In this regard, providing psychological support and referring victims to psychiatric professionals when needed are also integral steps in the evaluation process<sup>10</sup>.

In the forensic management of sexual assault cases, including the examination of victims, collection of biological evidence and preparation of forensic reports, the expertise of gynecology and forensic medicine specialists is of paramount importance<sup>11</sup>. The accuracy and thoroughness of forensic reports in such cases directly impact the effectiveness of legal proceedings. Consequently, it is essential for specialists to prepare these reports comprehensively. A study conducted in Turkey revealed that report inadequacies and delays, often stemming from a lack of experience, adversely affect the forensic process in sexual assault cases<sup>12</sup>. This underscores the importance of enhancing the training of specialists and ensuring their active involvement in managing these cases more effectively<sup>13-15</sup>.

## 2. Legal Sanctions in Sexual Assault Crimes

Sexual harassment, as outlined in Article 105 of the Turkish Penal Code (TPC), is a crime that involves disturbing sexual behaviors directed toward a victim without their consent, conducted through verbal, written or physical means. It occurs when the perpetrator engages in sexually explicit behavior towards the victim, either directly or indirectly. For the basic form of this offense, upon the victim's complaint, the perpetrator is subject to a prison sentence ranging from 3 months to 2 years or a judicial fine<sup>16</sup>.

Qualified forms of the offense include cases where the perpetrator commits sexual harassment by exploiting a position of public duty, guardianship, an employment relationship or hierarchical superiority in the workplace; when the crime is committed by multiple individuals; or when it occurs in circumstances where the victim is in a vulnerable state. In such cases, the penalty is increased by half<sup>16</sup>.

Sexual assault, as defined in Article 102 of the TPC, is a crime involving any non-consensual act performed on the victim's body with sexual intent. Upon the victim's complaint, a prison sentence of five to ten years is prescribed. If the offense involves penetration of the body with an organ or another object, the punishment is a prison sentence of no less than twelve years<sup>16</sup>.

The aggravated form of sexual assault includes cases where the offense is committed against a person unable to defend

themselves physically or mentally, by exploiting the influence of a public duty, guardianship or service relationship; against a relative within the third degree by blood or marriage; by a stepfather, stepmother, stepsibling, adoptive parent or adopted child; with a weapon; by multiple individuals acting together; or by taking advantage of circumstances that compel cohabitation. In such cases, the penalty is increased by half<sup>16</sup>.

When sexual assault is committed against children, Article 103 of the TPC applies, imposing much stricter penalties. In cases of sexual assault against children, the sentence starts at eight years and can extend to life imprisonment, depending on the severity of the offense. However, if the act is deemed to constitute only molestation, a prison sentence of three to eight years is prescribed<sup>16</sup>.

Additionally, Law No. 6284 on the Protection of the Family and Prevention of Violence Against Women provides significant protective measures for victims of sexual assault. This law includes protective orders, such as restraining the perpetrator from approaching the victim and ensures psychological and legal support for the victim. However, the effectiveness of these measures is sometimes criticized in practice and there are ongoing discussions about the need for stronger enforcement<sup>16</sup>.

## 3. Examination of Sexual Assault Victims

Practices aimed at identifying and caring for patients who have experienced sexual assault often fall short. The implementation of written protocols, use of standardized forms during examinations and operational strategies such as sexual assault response teams have greatly enhanced these processes<sup>12</sup>. These improvements have led to various positive outcomes, including reduced evaluation times, increased precision and thoroughness in forensic evidence collection, more comprehensive documentation of anogenital injuries, consistent testing and prophylaxis for STIs and pregnancy, timely referrals to mental health services, faster processing of criminal complaints and higher conviction rates and longer sentences<sup>17</sup>.

Before beginning the examination, it is essential to verify whether there is an official request letter from the judicial authorities requesting the examination; if no such official letter is present, the examination should not proceed. In the report to be prepared after the examination, the date and reference number of this letter should also be noted<sup>8</sup>.

The physician should adopt a reassuring, respectful and supportive attitude toward the individual to be examined, provide information about the interview and examination process and use clear language that the victim can understand. Care should also be taken to ensure that the physical conditions of the environment are suitable<sup>18</sup>. The examination should not proceed without the victim's consent and written informed consent should be obtained following the information provided<sup>19</sup>.

In some cases, prosecutors may request that an examination be performed forcibly, even if the victim does not consent to it. In situations involving allegations or suspicions of sexual abuse, forcibly subjecting the victim to an examination, even for evidence collection, infringes on numerous fundamental rights of the victim, including bodily integrity, the prohibition of inhumane treatment and privacy. Forcibly conducting internal body examinations or collecting biological samples can inflict lasting psychological harm on the victim, leaving permanent emotional scars. The Criminal Procedure Code explicitly states

that internal body examinations and sample collection should not carry a risk of harm to the individual's health. Therefore, in adherence to the "non-harm" principle outlined in the Criminal Procedure Code, forced examination is unacceptable<sup>19</sup>. In a study by Berger et al., half of the victims who underwent internal body examinations reported that the procedure added an additional psychological burden<sup>20</sup>.

From the physician's perspective, it is clear that forced examination is entirely contrary to the fundamental ethical principles and professional standards of medicine. There is no practice of forced examination within medical teaching and training. It is assumed that no physician would resort to forcibly examining a victim who has experienced a traumatic event, as such an approach could have lasting negative effects on the victim's mental and physical health<sup>19</sup>.

#### 4. Medical History

In the examination, the physician's primary responsibility is to provide medical care and collect biological evidence. Therefore, instead of a comprehensive history aimed at uncovering all details of the incident, a focused medical history should be taken to address the medical aspects of the assault and any injuries sustained. This approach helps prevent the victim from re-experiencing the traumatic event and avoids additional psychological harm. Essential information to be gathered includes the date of the assault, location of the incident, number of perpetrators, condition of the victim's clothing (e.g., any tearing), whether the victim resisted, nature of sexual contact (anal, vaginal oral), use of weapons, position during the assault, condom use, whether the victim washed afterward and the date of the victim's last consensual sexual activity. This information enables an assessment of the medical consistency between the injuries and the events described<sup>2,19</sup>.

##### 4.1. Physical examination (Internal and External Body Examination)

In cases of sexual assault, it is crucial not only to gather the victim's account and collect forensic evidence based on this information but also to assess physical injuries. When the victim's statements are supported by physical findings, they serve as strong evidence in legal proceedings. Examinations and evidence collection must be conducted meticulously, with the victim's consent. Studies report that extragenital injuries accompany sexual assault in 30% to 78% of cases<sup>4,6,7</sup>. Therefore, a systematic head-to-toe physical examination of sexual assault victims is essential.

The examination begins with an assessment of the victim's overall health status and vital signs, followed by a thorough inspection of the entire body. For a detailed examination, the victim must fully undress. Having the victim undress over a large brown paper is essential to collect any hairs, fibers or other materials that may fall from clothing<sup>8,19</sup>. During this inspection, particular attention is given to defensive wounds, ligature marks, bruises, abrasions and lacerations as indicators of assault. These injuries should be photographed with a scale that includes the date, time and case number. Accurate documentation and classification of injuries, noting the location, size, shape, color and surrounding tissue conditions, are critical steps in evidence collection. The healing stages of the wounds should also be recorded. A detailed examination of injuries in the genital and anal regions is particularly significant in forensic

reporting<sup>2,10</sup>. Sommers and Fargo's study found that external genital injuries were more common in cases of non-consensual sexual intercourse, doubling the likelihood of non-consensual involvement. They identified anal penetration and anal ecchymosis as significant indicators in such cases, emphasizing that careful examination and documentation of external findings can expedite case resolution<sup>21</sup>.

During the examination, the victim's mental state should be observed alongside physical injuries. Attention must be given to the victim's psychological reactions, trauma symptoms and emotional condition following the assault. Sensitivity toward the victim's potential fears and anxieties is essential and a calm and empathetic tone should be maintained throughout the interaction<sup>18</sup>.

Genital and anal examinations in sexual assault victims are crucial for both medical assessment and forensic evidence collection. These examinations should be meticulously planned to protect the victim's health, identify possible injuries and gather forensic evidence<sup>2</sup>.

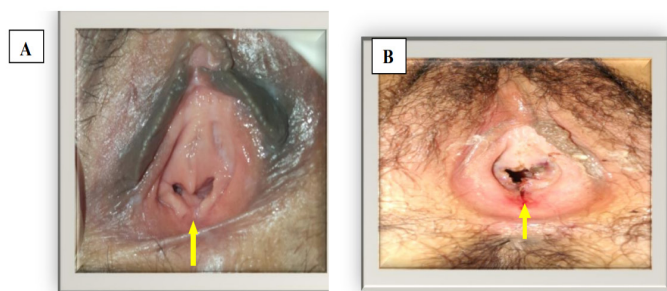
Genital examination is typically performed in the lithotomy position. To maintain patient privacy, it is important to provide a covering for the victim during the examination. Specialists should systematically inspect both the external and internal genital areas. The examination begins with the external genital area, where the labia majora, labia minora, clitoris, posterior fourchette and perineal region are carefully observed in detail<sup>2,19</sup>.

During the external genital examination, the labia majora and labia minora are carefully inspected for any signs of trauma that may be associated with sexual assault. Physical signs such as lacerations, ecchymosis, abrasions and swelling should be noted. The posterior fourchette and perineum are areas commonly injured during sexual assault, often due to forced penetration; gentle traction can be applied during inspection to reveal any concealed lesions. If there is bleeding in the external genital area, its source must be identified to determine whether it originates from the vulva or deeper regions. Sterile cotton swabs are recommended to collect swabs from any biological materials present (such as semen or saliva) in the external genital area. These samples should be appropriately packaged, labeled and preserved for forensic analysis<sup>2,10</sup>.

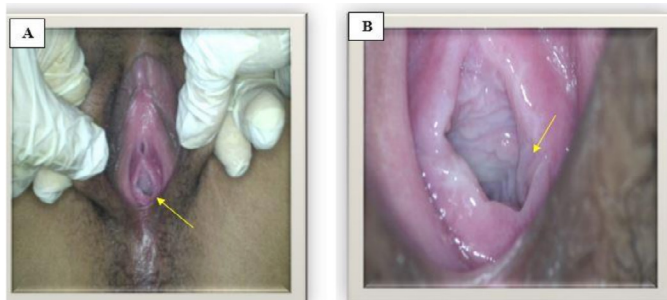
Following the examination of the external genital area, the internal genital examination is conducted. For a vaginal examination, the labia are gently retracted upward and outward to visualize the hymen, vestibule and vaginal introitus. The vaginal walls are then inspected for potential tears, abrasions, bruises or foreign objects. Semen or other biological materials may be present on the vaginal walls, so swabs are recommended for collection<sup>8,22</sup>. The hymen's shape, opening, edge characteristics, natural notches (if any) and any injuries should be documented. Findings should be recorded according to the clock-face reference, noting the patient's examination position. Hymenal tears typically occur between the 5 and 7 o'clock positions in the lithotomy position. In the first two days, tears are often erythematous, swollen, painful and may bleed, generally healing within a week<sup>8</sup>.

Colposcopy is also frequently used during this examination. Studies on sexual assault cases have shown that colposcopy provides a higher accuracy rate compared to visual examination alone. (**Figure 1**) Colposcopy has been demonstrated to detect

many genital injuries that are not visible to the naked eye with greater accuracy, highlighting the importance of using colposcopy as a standard tool in sexual assault cases<sup>7,23,24</sup> ..



**Figure 1:** A-Healed hymenal tear at the 6 o'clock position in an adult victim; B-Recent hymenal tear at the 6 o'clock position in an adult case, showing hyperemic, edematous edges with active bleeding<sup>31</sup>.



**Figure 2:** A-Natural notch at the 5 o'clock position on the hymen, which may be mistaken for a tear; B-Close-up and focused view of the 5 o'clock notch in the same case using colposcopy<sup>31</sup>.

Examination of the genital area with toluidine blue dye has become a part of the standard examination as a supportive evaluation method in terms of showing microtraumas. However, toluidine blue should be applied after taking swab samples due to its spermicidal effect. It should not be ignored that microtraumas detected with toluidine blue can also be seen in voluntary sexual intercourse and its compatibility with the history should be examined<sup>19</sup>.

The anal examination is typically performed with the victim lying on their left side in the fetal position, which facilitates comfortable access to the anal area. Initially, the external anal region is inspected, checking for ecchymosis, abrasions, lacerations or other signs of trauma. Non-consensual anal penetration can result in severe injuries in this region, often observed in the anus and perineal areas. Gently stretching the surrounding tissues can reveal deeper tears. Any lesions found are documented according to the clock-face reference. If no significant trauma is visible around the anus, an internal anal examination is conducted. At this stage, if swab sampling is planned, it is appropriate to collect it. A digital rectal examination may then be performed to assess internal anal trauma<sup>2,19</sup>.

If the sexual assault involved oral contact, a thorough examination of the oral cavity should be conducted under good lighting, particularly inspecting the soft palate and cheeks for signs such as ecchymosis or abrasions. If ejaculation in or around the mouth is suspected, swab samples should be collected from the oral cavity and surrounding areas to test for sperm<sup>8</sup>.

One of the most crucial responsibilities of specialists conducting examinations in sexual assault cases is the meticulous collection, proper storage and secure transportation of biological

and physical evidence for potential use in legal proceedings. This evidence is critical both for revealing the extent of the assault experienced by the victim and for identifying the perpetrator<sup>2</sup>.

The forensic evidence collection process for sexual assault victims involves sampling from all potential areas on the victim's body and clothing where evidence of the assault may be found. This evidence typically includes biological materials (such as semen, saliva, blood, hair and materials under fingernails) and other physical traces indicating direct contact between the perpetrator and the victim (such as fibers, soil and foreign objects)<sup>2</sup>. Semen can be found on various parts of the victim's body; the most common method to detect its presence involves collecting swabs from the vaginal, anal and oral areas. In the first stage, it is possible to use sources that provide light at different wavelengths and filter glasses. Blue-white reflection of semen stains under Wood's light can be used as a preliminary screening test<sup>19</sup>. Studies show that sperm traces are detected in about 30% of sexual assault cases, where they play a critical role in identifying the perpetrator during legal proceedings<sup>7</sup>. Vaginal and anal swabs are collected during the examination of these regions, while oral swabs are taken from the inner mouth using sterile cotton swabs. Ideally, the victim should not have cleansed these areas prior to sample collection<sup>8</sup>. Saliva is particularly important as evidence in cases where the perpetrator forcibly kissed or bit the victim. Saliva samples are typically collected from the face, neck and chest areas and swabs should also be taken from areas with bite marks. Blood samples are collected from the victim both for DNA profiling and for toxicological analysis in cases where substances were used to facilitate the assault<sup>19,25</sup>. Blood samples can also provide information about the victim's overall health and the severity of the assault. For biochemical and genetic analyses, at least two tubes of blood should be collected and stored under appropriate conditions. Additionally, a urine sample should be obtained for toxicological analysis and, if relevant, to determine pregnancy status<sup>26</sup>.

Subungual (under-the-nail) swabs are crucial evidence in cases where the victim engaged in physical struggle with the assailant, as they can reveal biological material from the perpetrator. These samples are collected using sterile nail cleaners or cotton swabs. Hair and fiber samples should also be collected to identify hairs shed from the perpetrator or any foreign material entangled in the victim's hair<sup>2,8</sup>.

The victim's clothing can be a valuable source of evidence following a sexual assault. Biological evidence such as semen, blood and saliva may be found on the garments. Foreign materials, such as soil, plant fragments, fibers or glass shards transferred to the victim's body or clothing during the assault, are critical for microscopic examination. These materials can provide information about the victim's surroundings or objects used by the perpetrator. When collecting clothing as evidence, each item should be individually packaged in paper bags to prevent biological degradation<sup>2,19</sup>.

The forensic value of biological and physical samples collected in sexual assault cases is directly related to their proper collection, storage and transportation. Improper handling, transportation or storage of evidence can render it unusable and lead to its inadmissibility in court. To prevent contamination, sterile equipment should be used for sample collection and new gloves should be worn for each procedure. When using cotton swabs for sampling, the swabs should be dried in a

clean environment after contact with the sample area and then appropriately packaged. Each sample should be individually wrapped in paper-based packaging materials. Numbering and labeling each sample prior to packaging is essential for proper identification and tracking of the evidence<sup>10</sup>.

Collected biological samples should be stored at appropriate temperature and humidity levels to prevent degradation. Typically, biological materials should be kept at low temperatures (around 4°C) rather than at room temperature and maintained under these conditions until they reach the laboratory. Dried swabs should be stored in breathable packaging to prevent biological degradation. During transportation to the laboratory, the same standards of sterility and integrity must be upheld. Detailed records should be maintained for each piece of evidence, including when, by whom and under what conditions it was collected<sup>8</sup>.

## 5. Sexually Transmitted Infections

Sexual assault victims are at high risk for sexually transmitted infections (STIs) and unintended pregnancies. To minimize these risks, post-exposure prophylaxis (PEP) for STIs should be administered to victims. Common STIs among victims include chlamydia, gonorrhea, syphilis, HIV and HPV, which may present with various symptoms in the genital, anal or oral regions. Rapid treatment is especially crucial for infections such as HIV and hepatitis B. For victims of sexual assault, antiretroviral therapy should be initiated within 72 hours to reduce the risk of HIV transmission. Vaccines and prophylaxis treatments are also available for hepatitis B and human papillomavirus (HPV). Administering these treatments to high-risk victims is vital. Conducting appropriate tests is essential for accurately assessing the STI risk post-assault, with tests like nucleic acid amplification testing (NAAT) offering high sensitivity and specificity for infection detection<sup>27</sup>.

### 5.1. Pregnancy status

In women, the risk of pregnancy following sexual assault depends on several factors, including the victim's menstrual cycle, the type of assault (vaginal, anal or oral penetration), whether the perpetrator used a condom and whether the victim had previously used contraceptive methods. Vaginal penetration, where sperm comes into contact with the vaginal area, carries the highest risk of pregnancy. Even if sperm is deposited near the vaginal region, there remains a risk. Different phases of the menstrual cycle can increase or decrease pregnancy risk; for example, an assault occurring between days 9-16 of the cycle carries a higher risk of pregnancy. Emergency contraception is one of the most effective methods for preventing pregnancy after sexual assault. Methods such as a copper intrauterine device (IUD) or emergency contraceptive pills containing levonorgestrel can reduce the risk of pregnancy by up to 95% when used within the first five days post-assault<sup>27</sup>.

It is also essential to recognize that sexual assault can occur during pregnancy. A study in Turin found that sexual violence during pregnancy accounts for 10% of all sexual assaults, often perpetrated by current or former partners, with foreign women experiencing higher rates of violence and sexual assault during pregnancy<sup>28,29</sup>.

## 6. Conclusion

The medical evaluation and reporting process in sexual assault cases play a critical role in the victims' pursuit of justice

and represent a significant responsibility for professionals. Evaluating sexual assault victims requires great sensitivity, not only for collecting physical evidence but also for managing and assessing the extent of the victim's traumatic experience. Forensic reports must be written in accordance with legal requirements and with the intent of safeguarding the victim's rights. These reports serve as essential evidence in judicial proceedings, significantly contributing to the victim's search for justice. Additionally, it is crucial that the examining physician approaches the victim with empathy and facilitates access to psychological support, which is a key part of this process.

A comprehensive physical examination should be conducted to inspect the victim's entire body, with each observed lesion meticulously documented. Anogenital examination is one of the most critical steps in the assessment. Traumatic findings in the genital and anal regions are among the key pieces of evidence that can corroborate the victim's statements. Lacerations, ecchymosis and abrasions in the external genital area are particularly indicative of sexual assault. It is important to note that many victims of sexual assault may not display overt physical findings. The presence or absence of findings should not be interpreted as excluding assault; instead, they should be assessed for their potential to support the history provided. Advanced imaging techniques, such as colposcopy, significantly aid in detecting microtraumas and can reveal injuries that are not visible to the naked eye.

Diagnostic methods, forensic evidence collection techniques and medical interventions used in these processes aim to provide effective evidence in legal proceedings. To manage cases effectively, all professionals involved must continuously update their knowledge and skills and training in this field should be enhanced. Gynecologists should be informed about the latest treatment methods and protocols for addressing victims of sexual violence. Combating sexual violence requires collaboration between healthcare professionals and forensic experts to protect victims and uphold justice.

A multidisciplinary team approach can enhance the diagnostic and treatment strategies for victims of sexual violence. In this context, gynecologists, social workers, psychologists, forensic specialists and other healthcare professionals should work collaboratively to ensure that victims receive optimal care<sup>30</sup>.

## 7. Disclosure

There are no financial disclosures, conflicts of interest, financial or otherwise. The authors declared that this study has received no financial support.

## 8. Ethical Declaration

"Ethics Committee Approval" is required for all kinds of research conducted with qualitative or quantitative approaches that require data collection from participants using questionnaire, interview, focus group study, observation, experiment, interview techniques; the use of humans and animals (including material / data) for experimental or other scientific purposes; clinical studies on humans; researches on animals; retrospective studies in accordance with the law on protection of personal data.

We accept and declare that the manuscript that above information is not included in this scope, that's why it does not require any "Ethics Committee Permission"; it is an original work; compliance with scientific ethical principles and rules is

observed in all stages of preparation, data collection, analysis and presentation of information; all data and information not obtained within the scope of the study are cited and that these sources are included in the references; accepts that no changes have been made to the data used, that all ethical terms and conditions specified in RESPECT's EU Code of Ethics for Socio-Economic Research, Committee on Publication Ethics (COPE) and Higher Education Institutions Scientific Research and Publication Ethics Directive are accepted all ethical duties and responsibilities are complied.

At any time, in the event that a situation contrary to this statement regarding the study is detected, I/We accept and declare that I/We agree for all ethic and legal consequences that may arise.

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