



Bloodstain Pattern: An open source of Evidence A Case Study

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Abstract:

The purpose of this paper is to present a case study of a crime committed in a remote area of Pakistan where a woman was found dead and her death was reported as a suicide. Investigation agency collected the data including the pictures from the crime scene. These pictures were sent to crime scene unit for their recommendations. Forensic experts studied and analyzed these pictures and by applying the techniques of Bloodstain Pattern Analysis (BPA). As blood behaves according to certain scientific principles, trained bloodstain pattern analysts can examine the blood evidence left behind and draw conclusions as to how the blood may have been shed. It is done by examining the distribution, location, shape and size of the bloodstains and it helps in determining about what did or did not happen. Because blood behaves according to certain scientific principles, trained bloodstain pattern analysts can examine the blood evidence left behind [and draw conclusions as to how the blood may have been shed]. BPA provides information not only about what happened, but just as importantly, what could not have happened.

A detailed analysis gave enough evidence to the experts that the submitted case was not a suicide rather it was a case of a homicide. The paper will attempt to study the observations of experts while analyzing the bloodstain pattern submitted to them and the conclusions they subsequently drawn, leading towards a clear evidence of a murder case.

Keywords: Bloodstain Pattern; Crime Scene; Suicide; Forensic Evidence

Introduction:

In Pakistan Crime Scene Units work as a support department of investigation agencies like police. They consist of forensic and investigation experts. This paper will attempt to study and analyze a case of femicide wherein a female was found dead in a room of her house. Paper will try to give a detailed analysis of the evidence present on the crime scene, observations of the unit and recommendation given by them. The incident occurred in a tribal area. The incident was reported by the family of the deceased as a case of suicide. Observations made by the unit on the crime scene had indications of manipulation of evidence. Careful

systematic observation of the crime scene by the crime scene unit, revealed that in fact the evidence was manipulated. Thus, the Investigating Officer (I.O.) was advised to look into the possibility of a homicide rather than a suicide. On directions of crime scene unit, the husband of the deceased was arrested. The evidence for his involvement was later confirmed by laboratory analysis.

Literature Citation:

Violence against women is one of the most widespread violations of human rights which affects women of all ages, cultures and races. On estimation one out of three women is subjected to

violence in her life. Femicide (Killing of a woman because she is a woman) is the worst expression of this violence. Too often justice is not served due to non-coordination among relevant stakeholders. Every society, country and government seem resolved to make sure that gender-based killings are not to be tolerated and the offender should not go unpunished. This message remains a primary point of concern in trainings and development of everybody working in support of administration of justice in that society. Now forensic evidence is being used extensively in crime scene units to reach the truth and this approach is also proving to be very helpful in solution of gender-based crimes in which, formerly, evidence used to be manipulated by the stakeholders including close family members. The case study under discussion is such a case where evidence was influenced by the family members of the deceased, yet law enforcement agencies were successful in solving the case using the forensics. Any manifestation or wielding of uneven relationships of power between men and women that culminates in the death of one or more women is considered to be femicide [1]. This type of crime can occur in various situations including: death perpetrated by an intimate partner, serial crimes, sexual violence followed by death, associated femicides or extermination. Murders of women cannot be understood as accidental or pathological: the greatest risk factor is being a woman, and they are killed because they live in patriarchal societies [2].

In various countries, a large proportion of the murdered women had histories of repeated violence and had tried to break up their relationships before being killed, especially during the last three months prior to the crime [3]. Femicide constitutes the most extreme form of violence against women and girls. It occurs in many parts of the world; in fact, few societies are free of it. There are, however, a number of prevalent forms, as stated by the WHO, 'Femicide is usually perpetrated by men, but sometimes female family members may be involved. Femicide differs from male homicide in specific ways. For example, most cases of femicide are committed by partners or ex-partners, and involve ongoing abuse in the home, threats or intimidation, sexual violence or situations where women have less power or fewer resources than their partner' [4].

To external observers, femicide might be interpreted simply as 'senseless violence'; however, this ostensibly 'senseless' condition implicitly denotes and refers to a cultural pattern that has an underlying rationale. The concept of femicide arose specifically in opposition to the 'reasonability' of this extreme form of violence against women not only within patriarchal social systems, but also in any other cultural contexts where it is 'justified'. For the most part, femicides occur in the private sphere, concealed from the public eye. Prevention of these deliberate murders requires they be rendered visible. Traditionally, femicide in the home enjoyed something akin to the principle of nonintervention families as independent republics each home with its own rules; nobody had the right to comment or interfere. However, in many countries, the domestic space is no longer a zone free for privatizing violent behaviors. Since femicide was named, there has ceased to be any place for the inviolability of the home. Femicide overrides the imagery of inviolability [5] and neutrality in the face of this violence.

According to the studies women were most frequently killed by men in the context of heterosexual relationships: by husbands, ex-husbands, partners, former partners, men with whom they were in casual 'on-off' relationships or men they encountered in a dating or sexual context. Combined, men in these categories carried out 63% (n=95) of all femicides [6]. This case study also refers to the same category of femicide.

As with suicide, femicide can be distinguished according to type. It includes so called 'honor' femicides, sex selection before birth, dowry marriage femicides and a host of other manifestations of extreme violence culminating in the death of a woman. Intimate femicide is just one form of femicide perpetrated by a familiar person, usually a family member. It includes murder by intimate partners and killings which occur when a woman is killed by a male family member for dishonoring the family status [7&8]. The term 'honor killings' has been criticized by some scholars [9], who prefer to regard these kinds of murders simply as 'femicides', which should be examined in the wider context of colonization. Intimate partner femicide is the final act of domestic violence or intimate partner violence, and is often the ultimate result of years

of suffered violence. A recent study affirms that 39% of all femicides (and 6% of all homicides) are intimate partner murders; in high-income countries, the percentage rises to 41% of all femicides [10]. As with suicide, rates of femicide vary from year to year and from country to country. Differing rates across regions and cross-national variations have been reported widely [11]. During the period 1985-2010, female homicide victimization increased in some countries in Europe (e.g. Switzerland, and Portugal), remained relatively stable in others (e.g. France and Italy), while countries such as Norway had extremely low rates of femicide. Accounting for macro-level variations in female homicide victimization requires knowledge of socio-political trends, such as post-communism, as well as an understanding of different criminological theories [12]. Like other developing countries, Pakistani society has a patriarchal structure and most of the socioeconomic space is owned and controlled by men. Because of the large gender disparities in the areas of health, education, and economic and political participation, women are usually subordinated to men and are frequent victims of violence. Archer reports that women's victimization rates are generally higher than men's in societies where women have less power and low social status [13].

Bloodstain Pattern Analysis (BPA) studies the interpretation of the shape and distribution of bloodstains connected with a crime. BPA also helps to distinguish between accident, homicide and suicide or to identify bloodstains originating from a perpetrator. Bloodstain pattern examiners typically adopt the terminology recommended by the Scientific Working Group on BPA (SWG-STAIN). Bloodstain patterns are classified into three categories [14]:

passive, transfer and spatter patterns:

- Passive patterns include drip stains, drip trails, drip patterns, low patterns and blood pools and it is normally caused due to the action of gravitational force.
- Transfer patterns are due to blood-bearing surface meets an-other surface Spatter patterns include cast-offs, splash, expiration, projected etc.
- Spatter patterns comprise small and tiny bloodstains which are typically smaller than passive stains.

Bloodstain pattern analysis has been used in criminal investigations for several years.

Analysis has been made faster through modern methods of measuring bloodstain patterns. However, since the beginning the basic principles of the analysis and the conclusions drawn have not changed. Bloodstain pattern analysis provides important forensic information about the crime under investigation; it tells what happened. Bloodstain patterns occur in several distinct categories, each revealing a piece of the crime scene puzzle. Crime scene investigators make a series of different measurements on the bloodstains at a crime scene and the data are used to reconstruct what happened during the commission of a crime scene. Every effort must be made to preserve the crime scene until the bloodstain evidence has been investigated. Bloodstain pattern analysis is a powerful tool used in solving violent crimes and must be performed by well-trained individuals. It is one of the most effective methods of reconstructing crime scenes available to forensic analysts [15]. A highly qualified analysis can help to estimate facts concerning the location, quality and intensity of an external force. A sequence of events may be recognized, and detailed questions connected with the reconstruction of the crime might be answered. In some cases, BPA helps to distinguish between accident, homicide and suicide or to identify bloodstains originating from a perpetrator [16]. Analysis of bloodstain morphology can support individualization of stains by directing the selection of a limited number of stains from a complex pattern for DNA analysis. The complexity of real situations suggests a step-by-step approach starting with a comprehensive view of the overall picture. This is followed by a differentiation and analysis of single bloodstain patterns and a search for informative details [17].

A case report of a 72-year-old woman who was found dead in her bedroom with a 4 cm vertical stab wound in the abdomen. A bloodstained knife was found in the top drawer of her bedside table. The clothes worn by the victim showed no damage. A bloodstained vest and a sweater with frontal incisions were found far from the victim, in the bathroom and in the bedroom respectively. Several bloodstains were found in every room of the apartment. The evidence found during the forensic examination and, in particular, the Bloodstain Pattern Analysis, led the investigators to determine the manner of death, being consistent with a suicide with a long-lasting physical activity after self-stabbing. This report

describes an unusual case of "disguised suicide," in which the victim tried to cover up the suicide by changing her clothes and concealing the weapon, in the last minutes of her life [18]. The mentioned case report refers the phenomenon of disguise or misinterpretation of events leading to conclude the manner of death. This case study is also an example to best describe the factual interpretation of crime scene events based on sound knowledge of bloodstain pattern analysis.

Methodology:

In this paper a qualitative approach was applied to a case using BPA (Bloodstain Pattern Analysis).

Bloodstain pattern analysis (BPA) is the interpretation of bloodstains at a crime scene or at laboratory in order to recreate the actions that caused the bloodshed.

BPA uses principles of biology (behavior of blood), physics (cohesion, capillary action and velocity) and mathematics (geometry, distance, and angle) to assist investigators in answering questions such as:

- Where did the blood come from?
- What caused the wounds?
- From what direction was the victim wounded?
- How were the victim(s) and perpetrator(s) positioned?
- What movements were made after the bloodshed?
- How many potential perpetrators were present?
- Does the bloodstain evidence support or refute witness statements?

Case Study:

Crime Scene Unit FSL now and then deals with several dead bodies at various death and homicide scenes. Deaths with sharp tools often found in homicide cases. Dealing with such dead bodies to extract the physical evidence and to reconstruct the crime scene is quite a technical and frantic task. In this case the CSU team encountered a scenario in which a dead body of a forty (40) year old woman was found in a room (used as a store room) with a knife on her left shoulder, lying supine with legs wide open on the soiled floor of the room. Blood spatter was evident on the face of the victim.

Initially the family (victim's in laws) reported

that she committed suicide by cutting through her neck with a household knife in the storeroom (a room in guest portion). The area where the house is situated is rural and has two portions one is for family members and second is the guest portion. The dead body was intact, and the scene was secured to process. A suspected sharp force wound was observed on the front neck beneath the chin of the victim. The presence of dry blood on the face and under the head of the victim assured that the dead body was consistent with the crime scene. Observations of the scene, dead body, and the presence of sharp force wound on front neck and a wooden handle knife (Apparently a kitchen knife) on her left shoulder was not corroborating with statement that she committed suicide due to depression. These observations helped the CSU team in understanding the scenario and collecting the probative evidence related to the homicidal act. All probative evidence items including bloodstains after swabbing and knife (Murder weapon) were photographed, packaged, sealed and documented according to SOPs in order to maintain chain of custody. Buccal swabs were taken as a reference DNA sample of the victim.

Crime Scene Observations

The crime scene unit searched the crime scene thoroughly for evidence and following observations were made:



Figure 1- Entry door of the crime scene room.



Figure 2- Location in room where deceased body was found.

1. Both patterns, bloodstain pattern on the wall and blood pool on the floor are in corroboration with the position of the deceased body right before receiving the injury. Position remained consistent after injury and till the victim became unresponsive. This indicates that the position of the victim was mainly enforced. Moreover, on soil floor surface few deformities indicate very little movement as sign of struggle. A clean void on the opposite end (to the wall) of the blood pool. It led to opine the involvement of minimum two persons in the activity.



Figure 3- Bloodstain Pattern on the wall and Blood pool on the floor.



Figure 4- Blood pool on the floor with a clean void on opposite end to the wall.

2. As the bloodstain pattern most probably transferred from assailant's clothing to door surface (swipe pattern) it indicated the movement of individuals from guest portion towards family portion, probability of family members involvement could not be ruled out.



Figure 5 & 6- Swipe Blood pattern on door's surface

3. Knife, murder weapon was having blood on front blade edge (pointed end), corroborating with stab activity. It also describes the position of the assailant sitting on the chest of the victim to induce a single stab in front neck area.



Figure 7- Bloody pointed end of knife

Conclusion:

Based on effective crime scene investigation findings, the crime scene team linked the forensic evidence with the suspect, victim and crime scene. Physical evidence collected from the scene turned out to be helpful in revealing the truth in the homicide incident and on crime scene team recommendations, police arrested the victim's husband. Later the one suspect (victim's husband) confessed to the crime and court convicted him with capital punishment based upon evidence while his accomplice (brother of suspect) is still on the run.

The study shows an immense need to strengthen system of collection and analysis of mortality

data, which includes the physical data from the crime scene and its forensic interpretation and analysis. This will help equip and empower the law enforcement agencies to gather evidence that may help the institutions responsible for administration of justice. This information can assist the investigator in reconstructing the crime, corroborating statements from witnesses, and including or excluding potential perpetrators from the investigation.

This study also confirms that the absence of forensic facilities in remoter areas help the perpetrator of a crime to escape from responsibility, and more in the cases when the perpetrators are in a position of authority thus able to influence the facts of the case by manipulating the evidence.

For academic purpose only one streak of evidence that is the bloodstain pattern has been analyzed in current study showing that conclusive evidence can be extracted from a single or alternatively from several sources. At times the conclusion achieved analyzing certain facts is a fruit of a poisonous tree and thus not admissible in a court of law. But nevertheless, it would help in giving the investigators and direction to work unto.

Data (the pictures of the crime scene) was collected by professionals and its chain of authentications were maintained, thus these findings were presented in the court of law and were an important evidence on which the decision of the case was made.

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