

Homicide-Suicide: The Mayerling Syndrome Does Not Capture the Full Complexity, Multifactorial Nature, or Processual Dynamics of the Phenomenon

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ABSTRACT

Homicide-suicide refers to an incident in which an individual kills one or more persons (homicide) and subsequently takes their own life (suicide). Although rare, these are highly complex events with profound emotional and social consequences. They can occur in various contexts—for instance, within the family (familicide), involving a partner and/or children (the perpetrator is typically male); or within intimate relationships, where the killing of a current or former partner is followed by the perpetrator's suicide. Another form is altruistic homicide, in which the perpetrator believes they are sparing family members from unnecessary suffering, often in situations of severe illness or existential despair. Such acts are often rooted in intense relational conflict and are frequently precipitated by recent traumatic events (e.g., separation, job loss), as well as facilitated by access to lethal means (e.g., firearms, bladed weapons). Perpetrators commonly exhibit a range of psychological disturbances, including depressive or psychotic disorders, and report feelings of loss of control, rejection, and enduring psychological pain. In cases involving romantic partners, the phenomenon is sometimes referred to as Mayerling Syndrome. Warning signs are frequently present but often go unrecognized—particularly in geriatric settings—where the potential for tragic outcomes may be more easily anticipated and possibly prevented through timely assessment and intervention.

Keywords: Homicide; Suicide; Geriatric Setting; Familicide; Mercy Killing; Mayerling Syndrome

Introduction

Homicide-suicide is a fortunately rare event that often shares certain features with both homicide and suicide, while also exhibiting distinct and noteworthy characteristics. Due to the lack of structured international registries, estimates of its prevalence remain largely speculative and are typically derived from media reports or case series from forensic pathology departments. Marzuk, et al. [1] estimated that the annual rate of homicide-suicide has remained relatively stable over the past 40 years, ranging between 0.2 and 0.3 per 100,000 population. In a 2009 review, Scott Eliason [2] similarly estimated its incidence in the United States at approximately 0.001%. However, the available literature reveals considerable variability in reported rates across different regions and studies. In Europe, rates range from a low of 0.02 per 100,000 in Greece and southwestern Croatia (e [3,4]), to 0.04–0.05 in England and Wales [5], 0.05 in the Netherlands [6], and up to 0.11 per 100,000 in Romania [7]. In Italy,

Marco Colasanti, et al. [8] estimated a homicide-suicide rate of 0.6% for the period 2009–2018—an increase compared to previous years. Using an ARIMA forecasting model, and in the absence of a national registry, they projected a continued rise in incidence. These findings support the hypothesis that homicide-suicide constitutes a distinct phenomenon, characterized by criminogenetic and criminodynamic features that differ substantially from those of isolated homicide [9].

Homicide-Suicide: Criminogenetic Characteristics

Based on the available empirical evidence, the perpetrator of a homicide-suicide is typically an adult male over the age of 45, with no criminal record, often from the middle class, affected by a personality disorder or a depressive condition, with a current or past history of alcoholism or substance abuse, and married or cohabiting. The victim is most often a younger woman, in the role of the perpetrator's [10] current or former partner, although this cannot be considered

a general rule. In most cases, suicide occurs, using the same weapon, within 24 hours of the homicide and not always in the same location, although delayed suicides also occur, often triggered by the perpetrator's sense of guilt. From a criminogenetic perspective, the most relevant factor is jealousy in the case of male offenders, while family, financial, or social stress is more common among female offenders, as is, not secondarily, the desire to put an end to the suffering of a partner or children caused by illness. Jealousy appears to be the main motivation only for male perpetrators (47.5%), while in female perpetrators, family stress and financial or social factors predominate (67.6%) [11]. These causal and etiological factors identified in Italy are consistent with the systematic review conducted by Rouchy, et al. [12], which showed that homicide-suicide is driven by two main motivations: jealousy and domestic conflict within a deteriorated relationship on the one hand, and on the other, psychotic delusions involving the intent to save loved ones, financial difficulties, or terminal illness.

However, other causal motives also exist, as confirmed by the review conducted by the Department of Legal Medicine at the University of Parma, which showed that, between 2003 and 2012, the most frequently involved kinship relationship was that between parents and children [13]. The complex criminogenesis of the phenomenon helps explain how, at the international level, its classification has significantly evolved. Until a few years ago, it was essentially characterized by the psychopathological profile of the perpetrator [14]. More recently, however, an alternative approach has been proposed, distinguishing between intrafamilial and extrafamilial levels [15]. Intrafamilial homicide-suicide includes all close relationships, including more or less intimate partners, not only traditional or strictly defined family ties; in the extrafamilial context, the homicide victim(s) are strangers or are involved in a more formal than intimate relationship with the offender. Intrafamilial homicide-suicides are further subdivided and classified respectively as intimate partner homicide-suicides, filicides, familicides, parricides, and siblicides [16]; extrafamilial cases have in turn been broken down into several subcategories to distinguish adversarial homicide-suicides, which involve some kind of formal relationship between the perpetrator and the victim, autogenic mass homicide-suicides where the victim is unknown to the perpetrator, sectarian cases, and finally, terrorist homicide-suicides [17].

One Part of the Problem: The 'Mayerling Syndrome'

This broad breakdown of the phenomenon into categories and subcategories demonstrates that homicide-suicide, whenever it involves two heterosexual lovers, exposes only a small portion of its complexity, despite having particularly inspired artistic and literary production. This latter variable is known as the "Mayerling Syndrome," in memory of what happened in the castle of the same name—about 30 km from Vienna—on January 30, 1889. On that day,

in Rudolf of Habsburg's bedroom, the bodies of the crown prince and his 17-year-old lover, Baroness Maria Alexandrina von Vetsera, were discovered. The bodies were found with gunshot wounds to the right temple in the prince's case and to the left parietal region in the noblewoman's case. The exact events of the case have been the subject of various reconstructions. Alongside those who explained the event as a deliberate double death caused by a passion as radical as it was opposed (an unrealistic hypothesis given that the noblewoman, being right-handed, could not have shot herself in the left side of the head), there are those who have argued that the death of Rudolf's pregnant baroness was more or less deliberate, followed by the prince's subsequent suicide. Still others have interpreted it as the result of a violent argument between the crown prince and his father Franz Joseph, provoked either by Rudolf's request for the papal recognition of the annulment of his marriage due to his wife Stephanie's sterility or by political ideas that opposed him to a reactionary emperor.

The official reconstruction at the time, based on a forensic medical report signed by three experts, including Rudolf's personal physician, was that the crown prince committed suicide because he was mentally ill and that the baroness in turn took her own life after her lover's death. The prince's mental illness was reportedly confirmed by autopsy findings discovered at the time by the three experts in charge of the brain dissection (the flattening of the cerebral convolutions, the dilation of the ventricles, and the unusual depth of the cranial fossa), all documenting Rudolf's alleged "state of mental insanity," almost confirming the fact that murder-suicide is the litmus test of a mental illness. We still don't know what actually happened at Mayerling Castle, although, with the passage of time, numerous clues have emerged that point to the idea that it was a true murder-suicide: the crown prince allegedly killed his young lover with a gunshot to the head and then committed suicide with the same weapon. The story, beyond the various posthumous interpretations, demonstrates that murder-suicide is characterized by at least three criteria: the psychological bond that exists between the person killed and the person who then kills himself; a chronological parameter (i.e., the time interval between the act of murder and the suicide) that must not generally exceed 24 hours; and an instrumental aspect (the use of the same means), probably not as fundamental as the other two.

The motivational criterion refers to the psychological bond that ties the victim to their murderer, a bond that is often expressed in the suicide pact between two lovers who decide to die because their love is opposed, or in the suicide of two people who commit suicide when the two protagonists have previously agreed to die. This should not be confused with post-homicide suicide, which is usually the result of the ambivalent love-hate relationship in which the protagonists are trapped. In these situations, murder is the fulfillment of a desire for revenge and suicide is the expression of the resulting punishment, as

confirmed by interviews with survivors [18]. It is the paranoid and/or depressive perception of the relationship or environment surrounding the victim and her tormentor that emerges from a psychodynamic point of view: the murderer, by killing his partner, eliminates the possibility of sharing her with someone else, even if in this way the murderer kills an extension of the self, then reacting to the dysphoric rage with self-inflicted death.

Another (Less-Studied) Aspect of the Phenomenon: Homicide-Suicide Among the older adults

A less explored facet of homicide-suicide, due to its relative rarity, is that involving the older adult population, although available empirical evidence suggests the existence of a constellation of risk factors specific to this demographic group. Annual incidence rates of murder-suicide among individuals aged 55 and older have been estimated to range between 0.4 and 0.9 per 100,000 inhabitants, with higher rates observed among the oldest individuals—particularly in cases where the male partner is the primary caregiver and there has been a rapid deterioration in the health status of one of the partners, especially when a firearm [19] is present in the home. Marital conflict is a significant causal factor in some cases of spousal murder-suicide [20]. However, depressed mood—often triggered by financial difficulties or caregiving-related stress—appears to be the most common motivating factor among older perpetrators. Jealousy and substance abuse issues, by contrast, are less frequently observed in this age group compared to younger offenders [21]. Regarding familicide, these acts are almost exclusively committed by men and lead to the perpetrator's suicide in approximately half of all cases. Perpetrators often present with mental health problems, relationship difficulties, and financial strain. However, future research should further investigate the specific risk factors associated with the different subtypes of familicide [22].

Among female perpetrators, relational conflict, mental health issues, and children's health problems are often present simultaneously. In contrast, male perpetrators [23] are more likely to have a history of relationship conflict, prior violence, and consequences of that violence (e.g., legal troubles, employment difficulties). Marital conflict remains the most relevant causal factor in older adults murder-suicide [24]. However, another important determinant should also be considered: the euthanasic intent of the perpetrator, who carries out the act in an attempt to end not only their own suffering but, above all, that of their partner. Current evidence suggests that it is most often the older adults male who kills his ailing wife, frequently using a firearm [25]. Many of these deaths may be preventable. Therefore, in all geriatric care settings, particular attention should be paid in cases where the man is the primary caregiver, when one partner's health deteriorates, when hospitalization or institutionalization is being considered, and when a firearm is present in the home [26].

Homicide-Suicide: Criminodynamic Characteristics

What must never be overlooked, however, is the presumed psychopathological linearity of the phenomenon. The complexity and multifactorial nature of murder-suicide render its criminodynamic aspects particularly intricate [27], to the extent that the differential diagnosis between homicide, suicide, and accidental death is often extremely challenging. It should also be noted that dyadic murder-suicide typically involves the use of a firearm (handgun or hunting rifle) or a bladed weapon. Italian data confirm that when the perpetrator uses a firearm, in 98.2% of cases the same weapon is used to commit suicide. This strongly supports the view that the chosen method in such cases may carry significant symbolic value. In 38% of these firearm-related cases, the entry wound is located in anatomical regions typically associated with suicide (e.g., the right temple), although the direction of the bullet trajectory differs from that observed in conventional suicides. This suggests that the projectile's trajectory should always be carefully examined, as it may aid in determining the actual manner of death [28]. In murder-suicides involving bladed weapons, stab and incised wounds may affect multiple anatomical regions. Typically, in the homicide phase, injuries involve the head, back, chest, and genital area, whereas in the subsequent suicide, wounds are most often located in the neck and chest [29].

The Role of the Forensic Pathologist in the Assessment of This Criminal Phenomenon

Knowledge of the criminogenetic and criminodynamic variables of homicide-suicide must not, however, become a source of bias for the forensic pathologist, who should always keep in mind that "there are more questions than answers, and often the questions remain unresolved" [30]. While such knowledge represents a valuable starting point, it should never compromise the quality of the forensic scene investigation, which remains essential for investigative purposes. As a general rule, the crime scene inspection should be conducted as soon as possible after the discovery of the bodies, in order to minimize environmental contamination that may compromise evidentiary integrity. In addition to documenting and photographing the state of the environment and the objects in which the bodies are found, the forensic pathologist must always examine the position of the corpses, the condition of their clothing, any visible traumatic injuries, the presence and distribution of blood, the characteristics of bloodstains, and estimate the time of death through classical thanato-chronological assessment. Although it is generally true that dyadic deaths occur within a 24-hour timeframe, the rigor mortis, rectal temperature, and livor mortis observed in both the victim and the perpetrator should display a broadly consistent progression. Exceptions may arise, however, when the bodies are discovered after a significant time lapse or in different environmental or temperature conditions.

These classic findings of forensic semiotics—though often overshadowed in contemporary practice by the emphasis on DNA and biological trace analysis—remain of critical investigative value when derived from the initial external examination of the body, particularly in establishing the time of death. Only afterward, during the autopsy, should a more detailed cadaveric examination be conducted to assess the location, shape, and trajectory of the injuries, in order to provide a preliminary indication of the cause of death—one that must later be confirmed by the findings of the full post-mortem examination. In post-homicide suicides involving firearms, the anatomical areas most frequently affected by the gunshot are the temple, mouth, and neck. In contrast, the injury sites in the homicide phase may vary widely and are often not random, as indicated by the frequent targeting of the victim's face—seemingly to obliterate their identity—and of the genital area. The analysis of entry wound characteristics can help determine the firing distance. Similarly, a detailed ballistic investigation can not only provide an initial hypothesis regarding the cause of death but also reconstruct the bullet's trajectory [31]. Trajectories directed to the left, upward, and backward are typically associated with suicide, whereas those directed upward and to the right strongly suggest homicide [32].

The paraffin glove test—or preferably, the more reliable gunshot residue (GSR) or “stub” test—can be useful in confirming whether a person has recently fired a weapon, by detecting primer residue on the hands. In murder-suicides involving sharp or pointed instruments (i.e., bladed weapons), it is equally essential to assess damage to the clothing, the presence of defensive wounds on the victim, the vitality of the injuries, and whether different types of weapons may have been used [33]. Penetrating trajectories directed to the left, upward, and backward are typically found in suicides, while those directed upward and to the right are more indicative of homicide [34]. When evaluating the regions affected—regardless of the number of wounds—abdominal stab wounds and horizontal incised wounds to the chest have been found significantly more frequently in homicide victims. Likewise, injuries inflicted on the back and genital area are not observed in suicide following the homicide of a partner [35].

Conclusion

Although statistically rare, homicide-suicide is an extraordinarily complex phenomenon that requires close attention within the framework of social policy—moving beyond the frequent media sensationalism, particularly when the homicidal and suicidal deaths involve romantic partners. Gaining a deeper understanding of its criminogenetic variables and its more strictly criminodynamic aspects is an unavoidable necessity if we are to prevent its occurrence and reverse the upward trend suggested by projections based on probabilistic models. Framing the issue as a matter of public health is equally imperative—an approach that must engage not only policymakers but also all stakeholders concerned with the protection of health and life.

In many cases, greater prudence, diligence, and attentiveness could serve as effective deterrents to deaths that are, in fact, often preventable.

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