

## Review

# Methods of Infanticide: A Review Article

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### Abstract

Infanticide refers to the act of killing of infant under the age of 12 months. It is mostly associated with mental disturbance during and immediately after pregnancy. Infanticide can result either from the act of commission or omission. Violence can be used by application of a blunt force or hard object on the infant leading to fractures or damage to vital organs. Strangulation is cutting off the flow of air by constriction of the air passages. This can be done manually or using a cord that wrap the neck. Drowning is the process of submersion or immersion in a liquid medium leading to respiratory impairment. Exposing the infant into the extremes of temperature is also one of the methods used in infanticide. It eventually results in organ dysfunction such as cardiac and respiratory failure, leading to death. Smothering is a form of asphyxia which is caused by deliberate mechanical blocking of the nose and mouth using hands, pillows, or any other objects. It is one of the favorable methods as the absence of resistance from the weak infant hardly leave any injuries. Stabbing is also one of the rare methods used in infanticide. Defenestration is the act of throwing someone or something out of a window leading to severe polytrauma and damage to vital brain centers. Negligence, which is the deliberate withholding of the infant's normal care, is one of the common methods in which death results from dehydration and starvation.

**Keywords:** Infanticide, neonaticide, filicide, smothering, neglect

## Introduction

Infanticide refers to the act of killing an infant under the age of 12 months (1). It can result from willful acts of commission, such as stabbing, strangulation, drowning, or violence, or omissions by neglecting the infant's essential needs. Most women commit infanticide due to inadequate recovery, both mentally and physically, from pregnancy, childbirth, or lactation, leading to significant mental or psychiatric distress. Mental disturbances during pregnancy can worsen if not properly treated by the family physician or psychiatrist. One-third of mental disturbances occur during the early phase of lactation, and one-half of the cases manifest during late pregnancy. Other types of child homicide include neonaticide, the killing of a child in the first 28 days after birth, and filicide, the killing of a child over 12 months old. This review aims to provide an overview of the different methods used in infanticide (2).

## Review

### *Violence*

One method employed in infanticide involves the use of blunt force or the application of violence on infants, achieved through a hard object or surface. This can result in bony fractures, especially skull fractures leading to cerebral hemorrhage and damage. Violence directed at the abdomen and chest may cause the rupture of vital organs such as the spleen and the liver, or damage to the heart and lungs. Gunshots, stabbing, or cutting are infrequently reported methods in infanticide (2). According to Brouardel (1897), a French midwife utilized insulin needles to murder approximately 20 newborns by inserting them into their anterior fontanelles. This technique was a well-known traditional practice that midwives employed as an attempt for infanticide, as it only leaves a small puncture mark in the anterior fontanelle (3).

### *Strangulation*

Strangulation involves the constriction of the air passage or other body parts, cutting off the flow of air. Manual strangulation may leave the skin of the throat marked with nails or finger imprints. It can be

executed by tightly wrapping a cord or another object around the neck, often leaving noticeable traces. Both manual and ligature strangulation are associated with external and internal neck injuries, typically visible, though occasionally minor. Petechial hemorrhages, identifiable by their location above the neck, are a common feature, although not diagnostic (4).

In cases where a newborn has hung itself, petechiae on the face and conjunctivae may be present if venous return is obstructed before arterial flow into the head. An incident in Sofia, Bulgaria involved the discovery of the naked body of a male baby in a trash can. Autopsy results from the Department of Forensic Medicine and Deontology in Sofia revealed the child was born healthy and full-term, with no physical anomalies or congenital deformities. Improperly severed umbilical cord suggested maternal neglect. Morphological evidence from the neck indicated ligature strangulation as the cause of death, occurring 12 to 24 hours before the autopsy and 15 to 20 minutes after delivery, as confirmed by postmortem changes and morphological results (5).

### *Drowning*

Drowning is defined as the process of experiencing respiratory impairment resulting from submersion or immersion in a liquid medium. When an individual is submerged in water, tissues become hypoxic and acidotic, leading to cardiac dysrhythmias. Fluid aspiration can cause pulmonary edema or acute respiratory syndrome due to surfactant washout and impairment. Cerebral hypoxia poses the highest morbidity and mortality risk, significantly impacting cerebrovascular and cardiovascular systems (6).

In most cases, individuals lose consciousness within 2 minutes of immersion, and irreversible brain damage occurs around 4-6 minutes. Hypoxemia may induce ventricular arrhythmias and severe pulmonary hypertension. A study conducted in 1965 in Toronto, Canada, on infanticide caused by drowning highlighted that not all cases of individuals found dead immersed in water are categorized as drowning. Forensic pathologists

must investigate to find evidence of death resulting from asphyxia due to drowning in the early stages. After excluding other potential causes of death, drowning can be attributed (7).

Immediate initiation of artificial respiration is crucial in any drowning case, and it should be sustained for approximately an hour or more. Another study from Northwestern University Pritzker School of Law in 1951 focused on infanticide cases associated with intentional drowning by mothers during the end stage of delivering their child. Using a wash tub filled with lukewarm water during labor pain and a squat position, the mother delivered the infant underwater. Death occurred due to water aspiration before lung inflation by air atmosphere. The mother then removed the child and disposed of the tub with its contents (8).

### ***Exposure***

Hypothermia is a medical emergency that occurs when the body loses heat faster than it can produce, resulting in a dangerously low body temperature. The normal body temperature is around 98.6°F (37°C), and hypothermia sets in as the body temperature falls below 95°F (35°C). The heart, nervous system, and other organs cannot function normally as the body's temperature decreases. If left untreated, hypothermia can lead to complete heart failure and respiratory system failure, ultimately resulting in death (9).

In a case report from Tokyo, Japan, in 2010, two deceased infants were discovered in a home freezer. The examination of the victims could not be conducted until they were immersed in saline at 37 degrees. Additionally, postmortem changes such as putrefaction and autolysis were not clearly observed. The autopsy revealed that the two infants were full-term at the time of death. However, there were no pathological findings or signs of asphyxia suspicions (10).

### ***Smothering***

Homicidal smothering is a form of asphyxia caused by the deliberate mechanical blocking of external air passages, preventing breathing by obstructing the

nose and mouth-typically achieved using hands, pillows, bedding, or other objects. Victims are often individuals unable to defend themselves, such as the very young and the elderly. Their limited resistance may result in a relative absence of injury, which is advantageous to the perpetrator and can be a pitfall for the incautious pathologist. Consequently, diagnosing smothering at autopsy poses a challenge in forensic medicine (11).

Moreover, infants accidentally smothered have been a persistent social issue for centuries. Both historically and in contemporary societies, the connection between smothering and infanticide has been frequently observed (12). Smothering was the primary focus of research when examining infanticide methods. Individuals from diverse social backgrounds used smothering as a specific instance of this practice to avoid potential moral and legal repercussions.

However, in some cases, a limited number of autopsy findings can be established, such as facial linear abrasions and bruises, conjunctival petechial hemorrhages, and mucosal abrasions, providing additional evidence of smothering (13).

### ***Stabbing***

Stabbing is defined as the close-range penetration or forceful contact with a sharp or pointed object. While the term "stab" often implies intentional actions, such as those of a killer or assassin, accidental stabbings can also occur. Unlike slashing or cutting, stabbing typically involves moving an object perpendicular to and directly into the victim's body rather than across it (14). Stabbing is a rare cause of death in infanticide cases (2).

A study conducted by Shelton, J et al. examined 45 cases of maternal neonaticide in the United States from 1992 to 2006, revealing that the percentage of stabbing incidents was 5.1% (15). In a retrospective study in Tunisia spanning from 1977 to 2016, Ben Khelil et al. found that the percentage of stabbings accounted for 2.5% of all known causes of death (16). Conversely, a Finnish retrospective study over a 25-year period by Kauppi, A et al.

indicated that stabbing was involved in 25% of maternal filicide cases (17).

A case report by Schmidt S. in Brampton detailed an incident involving a 15-year-old mother who stabbed her baby with scissors in the family bathroom. A post-mortem examination revealed 31 identifiable injuries to the upper torso and head, ranging from small scars to deep stab wounds. The weapon, a pair of scissors, was later discovered in the bathroom (18).

### ***Defenestration***

Defenestration is the act of throwing someone or something out of a window (19). In a case report conducted in 2021 in Spain by Tiffon, B et al., it was found that a 19-year-old woman gave birth to a female infant who could breathe independently in her home's bathroom. Subsequently, she threw the newborn out of the bathroom window, situated at a height of 74.97 feet, overlooking an internal patio of the property. Consequently, the infant's death resulted from severe poly-trauma and damage to vital brain centers (20).

### ***Negligence or abandonment***

The intentional act of omission refers to the deliberate failure to provide expected care during childbirth, such as maintaining the infant's warmth and nourishment, performing tasks like tying and cutting the cord, and clearing mucus from the air passages. Unlike acts of commission, purposefully withholding standard care is challenging to establish, as it may be attributed to a lack of experience (21).

In a 40-year retrospective study conducted in northern Tunisia on infanticide trends, Ben Khelil et al. discovered that out of 513 cases of infanticide, approximately 50% were attributed to neglect. Most infants affected by negligence were abandoned in public areas, showing no injuries and, in most instances, with the umbilical cord still attached to the placenta (16). A similar study in Senegal by Moseson H. et al. revealed that abandonment was a common method of infanticide, occurring in various locations such as septic tanks, toilets, garbage cans, or on railways. While many infants were found

alive, authorities still classified these cases as instances of infanticide or attempted infanticide (22).

Furthermore, a case reported in 2013 by Rahman T. et al. documented infanticide committed through starvation and dehydration on a 4-month-old infant. Incoherence was noted in the mother two weeks before the infant's death. She opted for a concoction of water, oat cereal, and "something healthy" as the child's primary source of nourishment instead of infant formula. The parents transported the infant to the emergency department after he stopped breathing, but he was already deceased upon arrival. Both parents faced murder charges. The mother had schizoaffective disorder, while the father was diagnosed with shared psychotic disorder (*folie à deux*), as determined by forensic assessment (23).

### **Conclusion**

To prevent neonaticide, infanticide, and filicide, additional studies should explore the motives and perspectives behind these acts. Many mothers who committed such acts faced psychological and marital conflicts along with a lack of support. On the other hand, fathers were often characterized by violence, alcohol abuse, or personality disorders. Physicians should, therefore, screen parents for depression and inquire directly about suicidal and homicidal ideation. Adequate social support should be offered, especially to inexperienced and economically challenged parents. Improvements in sex education, contraceptive access, and prenatal care are also potential areas for intervention.

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**Data availability**

Data that support the findings of this study are embedded within the manuscript.

**Author Contribution**

All authors contributed to conceptualizing, data drafting, collection and final writing of the manuscript.

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