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Infanticide Cases at a Top Referral Hospital in West Java, Indonesia: Prevalence and Causes from 2019 to 2023

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Abstract

Background: Infanticide refers to the intentional killing of a newborn by the biological mother shortly after birth, which can be proven through internal and external forensic examinations. This study aimed to determine the prevalence and causes of suspected infanticide cases at a top referral hospital in West Java, Indonesia.

Methods: A descriptive study was conducted using total sampling of all *Visum et Repertum* reports from 2019 to 2023 at the Department of Forensic and Legal Medicine, Dr. Hasan Sadikin General Hospital, Bandung, Indonesia. A total of 1,531 forensic cases were reviewed. Data on characteristics and findings from internal and external examinations were collected and analyzed.

Results: Of 1,531 cases, the most common classification was death on arrival (n=480), whereas suspected infanticide ranked fourth (n=50). However, only 16 cases met the established forensic criteria for infanticide. The leading cause of deaths was head injury due to blunt force trauma (37.5%), followed by undetermined causes (25%), hypothermia (12.5%), asphyxia (12.5%), drowning (6.25%), and neglect (6.25%).

Conclusions: The prevalence of confirmed infanticide is 1.05%, with blunt head trauma being the most common cause of death. These findings highlight the urgent need for government intervention to evaluate population and family development programs, including reproductive health education, readiness for marriage, and parenting responsibilities in school curricula. Promoting comprehensive education and responsible parenting may reduce the incidence of infanticide and support healthier family environments for future generations.

Keywords: Blunt head trauma, cause of death, infanticide, *visum et repertum*

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Introduction

Infanticide, according to the English Infanticide Acts, is defined as the killing of a baby by the biological mother when the child is less than 12 months old.[1] In Indonesia, infanticide is regulated under the Penal Code of Indonesia (*Kitab Undang-Undang Hukum Pidana*, KUHP), specifically in Articles 341 to 343.[2] Article 341 states that a mother who, driven by fear of the discovery of her childbirth, intentionally takes the life of her child at or soon after birth, shall be punished with a maximum imprisonment of seven years. Article 342 stipulates that a mother who, with deliberate intent and driven by the fear of the discovery of her pregnancy, causes the death of her child at or soon after birth, shall be sentenced to a maximum of nine years in prison. Furthermore, Article 343 states that individuals other than the mother who are involved in the crime described in Articles 341 and 342 shall be treated as guilty of manslaughter or infanticide.[2]

The causes of infanticide are often multifactorial, commonly involving the mother's psychological condition, economic hardship, and, most frequently, the fear of societal stigma associated with unplanned pregnancies, especially those occurring outside of marriage.[3] In some cases, the birth of a child

with disabilities that are deemed unacceptable to the mother may also contribute to the occurrence of infanticide.[4] Addressing this issue aligns with the Sustainable Development Goals (SDG), specifically Goal 16, which emphasizes "Peace, Justice, and Strong Institutions," including the protection of children from abuse, exploitation, trafficking, and violence. The global target aims to reduce the neonatal mortality rate to 12 per 1,000 live births by 2030. However, as of 2017, Indonesia's neonatal mortality rate remained at 15 per 1,000 live births, indicating that this target has yet to be achieved.[5]

For infanticide, the prevalence in global and national varies because not all cases can be revealed.[6] Determining whether a case qualifies as infanticide requires both external and internal examinations to assess several key factors, including whether the infant was born alive (evidenced by respiration, cardiovascular activity, or stomach and intestinal contents), viability (gestational age greater than 28 weeks), signs of postnatal care (absence of vernix caseosa and a detached umbilical cord), indications of violence (such as injuries), and the cause of death (if determined to be unnatural).[7,8]

Data from Dr. Hasan Sadikin General Hospital between 2013 and 2017 revealed that infanticide was the seventh most common forensic case, with a total of 1,692 cases, of which approximately 7% were classified as infanticide. Among children under five years of age, the most frequent causes of death were infanticide (53%) and death on arrival (42%).[9] Despite the frequency of suspected infanticide cases, research on this issue in Indonesia remains limited. Therefore, this study aimed to examine the prevalence and underlying causes of suspected infanticide cases at Dr. Hasan Sadikin General Hospital. This study is expected to contribute to public awareness regarding the extreme consequences of child abuse, promote more responsible family planning, enhance judicial understanding of infanticide cases, and inform the development of government programs and further research aimed at prevention and intervention.

Methods

This was a retrospective descriptive study that collected secondary data from all *Visum et Repertum* cases at the Forensic Department of Dr. Hasan Sadikin General Hospital, Bandung, Indonesia. Data on deceased infants recorded between 2019 and 2023 were further evaluated. The inclusion criteria were cases of infants suspected of infanticide without maternal identity. The exclusion criteria included incomplete data and cases where the infant's body was decayed or the cause of death could not be identified. Ethical clearance for this study was obtained from the Research Ethics Committee of Universitas Padjadjaran, Bandung, Indonesia (No. 226/UN6.KEP/EC/2024), and was also approved by Dr. Hasan Sadikin General Hospital (No. DP.04.04/D.XIV.4.4/688/2024).

The data collected included gender, age, findings from internal and external examinations, and the determined cause of death. Internal examination involved surgical procedures to observe the body, including assessments of body length, weight, decomposition of internal organs, estimated time of death, presence of vernix caseosa (a white, cheesy substance covering newborn skin), and examination of the umbilical cord and placenta. External examination involved non-surgical observations, including the identification of injuries to the head, neck, thorax, abdomen, genitalia, extremities, and sternum.

Additional variables collected were whether the infant was born alive or dead, whether the infant was viable, presence or absence of signs of care, presence of violence, and the determined cause of death. Causes of death were classified as asphyxia (including smothering and strangulation), head injuries, multiple injuries, drowning, poisoning, live burial, hypothermia, neglect (including malnutrition and dehydration), or undetermined causes when findings did not allow the determination of a specific cause of death. Data were analyzed using Microsoft Excel 2019 and presented as frequency distributions in tables.

Results

A total of 1,531 cases were recorded in the Forensic Department of Dr. Hasan Sadikin General Hospital between 2019 and 2023, of which 50 (3.27%) were suspected infanticide cases. Infanticide ranked as the fourth most common medicolegal case during this period, with the highest number recorded in 2021 (Table 1 and Table 2).

Among the 50 suspected cases, 16 (1.05% of the total cases) met the criteria and were confirmed as infanticide. The remaining cases were excluded due to advanced decomposition preventing identification of infanticide

Table 1 Number of Cases in the Forensic Department of Dr. Hasan Sadikin General Hospital from 2019 to 2023

Case	n	%
Death on arrival	480	31.35
Sudden death	449	29.33
Traffic accident	395	25.80
Suspected infanticide	**50**	**3.27**
Train accident	40	2.61
Drowning	32	2.09
Illness	25	1.63
Self-hanging	20	1.31
Murder	11	0.72
Persecution	7	0.46
Work accident	6	0.39
Skeleton	3	0.20
Electrocution	3	0.20
Burns	2	0.13
Well entry	2	0.13
Fall/suicide	1	0.07
Thumb	1	0.07
Gunshot wound	1	0.07
Malpractice	1	0.07
Grave digging	1	0.07
Buried by landslide	1	0.07
Total	1531	100

Table 2 Number of Suspected Infanticide Cases from 2019 to 2023

Year	Case	Percentage (%)
2019	10	4
2020	6	2
2021	19	5
2022	4	1
2023	11	3
Total	50	100

characteristics and cause of death (n=13), determination as stillbirth or undetermined cause (n=11), incomplete internal examination data (n=1), and unavailability of *Visum et Repertum* documentation (n=9) (Table 3).

The determination of cause of death was based on both external and internal examinations. Internal examinations involved the assessment of internal organs, although not all cases underwent histological examination, and in some, not all organs were assessed. Various pathological findings were observed in different cases, including signs consistent with hemorrhage, hypothermia, and asphyxia (Figure 1).

Discussion

The prevalence of suspected infanticide in this study was 3.27%, with confirmed infanticide cases at 1.05%, peaking in 2021. This increase may be associated with the rise in pregnancies resulting from sexual violence, including cases potentially linked to the increased use of dating applications during the COVID-19 pandemic, which may have contributed to risky behaviors or exploitation.[10]

Male infant cases (62.5%) were more common than female (37.5%), consistent with previous studies in India and Indonesia, which reported a male-to-female ratio of approximately 1.26:1.[11,12] This finding differs from studies in certain regions of India, where female infanticide predominates due to gender discrimination favoring male offspring.[13] However, in this study, no association between gender and infanticide was observed, as the primary motive appears to be the fear of giving birth outside of marriage, regardless of the baby's gender.

Table 3 Characteristics of Death Findings in Confirmed Infanticide Cases in Dr. Hasan Sadikin General Hospital from 2019 to 2023 (n=16)

Variable	n	%
Gender		
Male	10	62.5
Female	6	37.5
Gestational age		
28–40 weeks	14	87.5
>40 weeks	2	12.5
External examination		
Body length		
<35 cm	1	6.25
35–40 cm	2	12.5
41–45 cm	2	12.5
46–50 cm	7	43.75
>50 cm	4	25
Weight		
<1 kg	2	12.5
1–1.5 kg	2	12.5
1.5–2.5 kg	3	18.75
2.5–3.5 kg	8	50
>3.5 kg	1	6.25
Decomposition		
Can be identified	7	43.75
Can not be identified	9	56.25
Vernix caseosa		
Can be identified	5	31.25
Can not be identified	11	68.75
Placenta/umbilical cord		
Can be identified	14	87.5
Can not be identified	2	12.5
Internal examination		
Head		
Can be identified	14	87.5
Can not be identified	2	12.5
Neck		
Can be identified	4	25.0
Can not be identified	12	75.0
Thorax		
Can be identified	2	12.5
Can not be identified	14	87.5
Abdominal		
Can be identified	3	18.75
Can not be identified	13	81.25
Extremity and sternum		
Can be identified	2	12.5
Can not be identified	14	87.5
Genitalia		
Can be identified	0	0.0
Can not be identified	16	100

The majority of cases involved full-term infants, consistent with viability criteria, typically set at 28 weeks gestation, where survival outside the womb is possible.[14] However, some full-term infants exhibited lower-than-expected weight and length, likely due to factors such as poor maternal nutrition, underlying health conditions, or pregnancy complications.[15] Furthermore, most infants weighed between 2.5–3.5 kg with lengths

Table 4 Criteria and Cause of Death in Confirmed Infanticide Cases in Dr. Hasan Sadikin General Hospital from 2019 to 2023 (n=16)

Variable	Distribution (n)	Frequency(%)
Sign of violence		
Can be identified	13	81.25
Can not be identified	3	18.75
Cause of death		
Asphyxia (smothering, strangulation)	2	12.5
Head injuries	6	37.5
Multiple injuries	0	0.0
Drowning	1	6.25
Poisoning	0	0.0
Live burial	-	0.0
Hypothermia	2	12.5
Neglected	1	6.25
Undetermined	4	25
Born alive/death		
Born alive	16	100
Stillbirth	0	0.0
Viability		
Viable	16	100
Not viable	0	0.0
Sign of care		
Can be identified	2	12.5
Can not be identified	14	87.5

ranging from 46–50 cm, aligning with normal fetal growth expectations.[1]

Decomposition was noted in a smaller proportion of cases, with the majority showing no signs of decomposition, indicating that death occurred within 24 hours prior to discovery.[12] Decomposition poses significant challenges in forensic examinations, particularly in advanced stages.[16] Decomposition involves two primary processes: autolysis, cell and organ breakdown by enzymes, and putrefaction, which results from bacterial activity and fermentation. Visible signs of decomposition typically appear after 24 hours, marked by greenish discoloration of the lower right abdomen, which progressively spreads, along with the development of a foul odor. According to Casper's Law, decomposition rates vary by environment, with the ratio being 1:2:8 for air, water, and soil, respectively.[17]

The presence of vernix caseosa and the condition of the umbilical cord were assessed as indicators of postnatal care. If absent, it suggests that the infant may have been cleaned or cared for prior to death.[1] In this study, vernix caseosa was absent in 68.75% of cases. However, its absence does not necessarily confirm postnatal cleaning, as decomposition can obscure its presence. Notably, 87.5% of cases showed no signs of care, consistent with the understanding that infanticide typically occurs shortly after birth, leaving minimal opportunity for cleaning or umbilical cord cutting.[1]

Internal examination revealed that head injuries were the most common (87.5%), predominantly blunt force trauma, similar to findings from India.[11] However, not all head injuries were the direct cause of death. Some injuries may result from birth trauma, especially in vertex deliveries, where blood infiltration of the scalp is common. Observed injuries included temporal bone fractures, cerebral hemorrhage, abrasions on the forehead and cheeks, subgaleal hemorrhages, skull fractures, and open cranial wounds.

Neck injuries often resulted from external pressure leading to asphyxia, evidenced by bruises and hemorrhage in the neck tissues. Drowning-related cases showed the presence of foreign material, such as sand, in the airway. Thoracic injuries were identified through abrasions and muscle hemorrhages in the chest. Injuries to extremities and the sternum included abrasions and cyanosis of the nails, indicative of asphyxia. Abdominal injuries presented as gastric mucosal spots, often linked to hypothermia, and in some cases, foreign materials like sand in the stomach were observed.

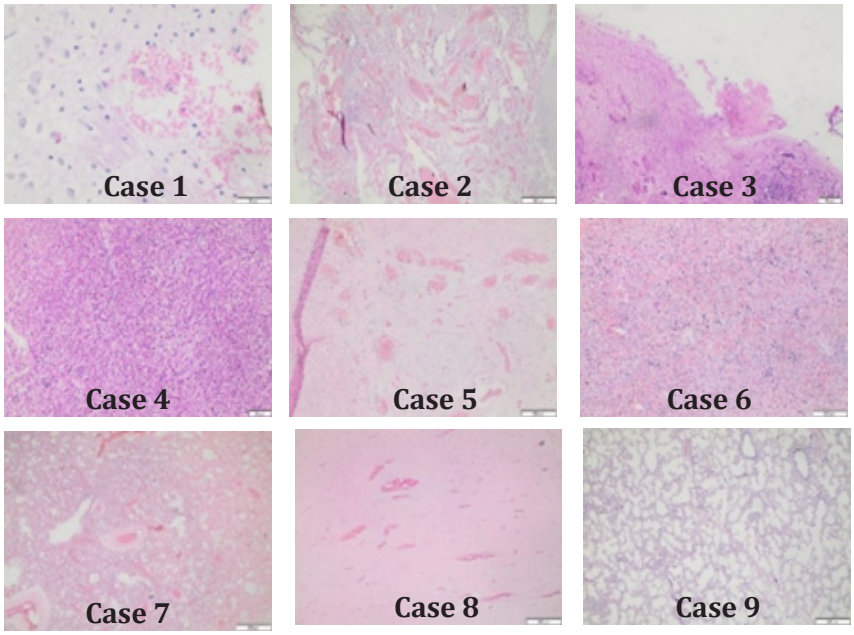

Figure 1 Pathological Anatomy Findings in Suspected Infanticide Cases

Note: Case 1–2: haemorrhage findings (1. Brain haemorrhage. 2. Blood infiltration of the brain). Case 3–4: hypothermia findings (3. Bleeding of gastric mucosa. 4. Steatosis and necrosis). Case 5–8: asphyxia findings (5. Brain congestion. 6. Hepatic congestion and haemorrhage. 7. Pulmonary congestion and haemorrhage. 8. Congestive heart failure. Case 9, expanded normal lungs in live born baby's body death)

Findings consistent with hypothermia included gastric mucosal bleeding, steatosis, and tissue necrosis. Gastric bleeding arises due to impaired coagulation and platelet dysfunction.[21] Low body fat increases the risk of hypothermia because of diminished thermal insulation.[22] Prolonged hypothermia reduces tissue perfusion, leading to necrosis.[23] Additionally, hypothermia triggers oxidative stress and hormonal disturbances, promoting fat accumulation (steatosis) in organs such as the liver, kidneys, and pancreas.

These findings align with data from forensic centers in Yogyakarta and other regions of Indonesia.[12,18] However, comparisons of infanticide prevalence with other medicolegal cases remain limited due to scarce literature.

The leading causes of death in confirmed infanticide cases were blunt head trauma and asphyxia. Head trauma involved hemorrhages within the brain and scalp, while asphyxia resulted from smothering, strangulation, drowning, or airway obstruction, leading to hypoxia and hypercapnia.[19] Asphyxia also disrupts systemic circulation, causing blood congestion in vital organs, including the brain, lungs, and liver, which can contribute to fatal hemorrhages.[20]

Accurate differentiation between infanticide, abortion, and miscarriage is critical for legal processes. Under Article 348 of the Indonesian Penal Code (KUHP), abortion refers to the intentional termination of pregnancy before viability (before 28 weeks).[2,24] In contrast, infanticide occurs postnatally, after birth.[8] Miscarriage is the spontaneous loss of pregnancy before viability without human intervention.[24] In this study, 3 out of 50 cases were nonviable and likely categorized as abortion.

The primary driving factor for infanticide is unplanned pregnancy, particularly outside of marriage, often compounded by inadequate sexual education and psychosocial distress. This underscores the urgent need for interventions such as early mental health screening, postpartum depression assessments, and access to comprehensive reproductive health services. Preventive strategies must include strengthening adolescent education on reproductive health, consent, and the consequences of early or unplanned pregnancies.[25]

The readiness of both husband and wife is essential in preparing for marriage, pregnancy, and childbirth. Government policies, such as Law No. 16 of 2019, which raised the minimum marriage age to 19 years for both genders, represent progress.[26] However, biological and psychological readiness for pregnancy may

not align with this legal threshold, particularly for females, as pregnancies at younger ages carry higher risks for both mother and fetus. The ideal maternal age for pregnancy is 20–35 years.[27] Educational institutions should play a proactive role in delivering comprehensive reproductive health education to prepare adolescents for responsible adulthood.

This study has several limitations. Data collection was limited by incomplete information in some *Visum et Repertum* reports and the inability to perform comprehensive histopathological examinations due to decomposition in several cases. Additionally, the lack of a standardized and well-maintained forensic database posed challenges in case tracking and analysis. Improvements in registry systems and forensic documentation are essential for future research accuracy and quality.

In conclusion, the prevalence of confirmed infanticide at Dr. Hasan Sadikin General Hospital is 1.05%, with blunt head trauma identified as the dominant cause of death. This finding highlights a serious public health and legal concern. The high incidence reflects the urgent need for government intervention to evaluate and strengthen existing policies, particularly those related to adolescent reproductive health, mental health support, and family readiness education. Preventive measures, including enhanced sexual and reproductive health education, mental health screening, and community-based support systems for young mothers, are crucial. Schools should play an active role in providing comprehensive education on reproductive health and responsible parenting. By implementing these strategies, society can foster healthier lifestyles, reduce the occurrence of infanticide, and contribute to nurturing a more prepared and responsible future generation.

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