

Neonaticide in the City of Rio de Janeiro: Forensic and Psycholegal Perspectives*

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ABSTRACT: This is a retrospective study of mothers charged with killing their children within 24 h of birth in the city of Rio de Janeiro, Brazil. Characteristics of the mothers and the victims, the circumstances surrounding the offense, the mothers' motivation and state of mind at the time of the offense, the legal process, and follow-up data were investigated. We analyzed our cohort as two subgroups: 26 offenses that occurred between 1900 and 1939 and were dealt with under the Brazilian Penal Code of 1890, and 27 offenses that were committed between 1940 and 1995 and were dealt with under the Penal Code of 1940. The mothers were young (mean 22.5 ± 5.3 years), unmarried (88.2%), non-Caucasian (73.8%), and had limited formal education. They usually kept the pregnancy a secret (94.1%) and gave birth in a classified way (100%). Most victims were killed through wounding violence (77.4%). Offenders identified between the years of 1940–1995 had increased rates of literacy ($\chi^2 = 6.80$, d.f. = 1, $p = .009$), a higher incidence of reported psychiatric symptoms ($\chi^2 = 11.82$, d.f. = 1, $p < .001$), increased referral for psychiatric assessment ($\chi^2 = 3.85$, d.f. = 1, $p = .05$), and greater frequency of cases where statute of limitations was expired ($\chi^2 = 3.88$, d.f. = 1, $p = .049$).

KEYWORDS: forensic science, forensic psychiatry, neonaticide, infanticide, murder

There is a long documented tragic history of parents murdering their children, and the characteristics and societal acceptance of newborn murder has changed radically over time. In ancient Athens and Rome, the killing of a newborn was considered a right of the head of the household because birth order determined legal descent (1,2). During the Middle Ages, newborn murder was illegal yet widely tolerated because it was a surrogate for birth control and was justified as a method of limiting family size (3). In modern Western countries, where human life is given greater valence, newborn killing is generally assumed to be the result of deranged mental functioning.

Resnick reviewed the world literature on murder of children by parents from 1751 to 1967 (4,5). He described two distinct patterns of killing: (1) neonaticide, “the killing of a neonate on the day of its

birth,” (2) filicide, “the murder of a son or a daughter older than 24 hours.” Resnick (5) concluded that most neonaticides were performed because the child was unwanted due to illegitimacy, rape, and seeing the child as an obstacle for parental ambition, not mental illness. Resnick (5) compared and contrasted mothers who committed neonaticide with mothers who committed filicide and found that the former were younger, usually single or widow, less frequently psychotic, made fewer suicide attempts, and were likely to be sentenced to prison or probation. Despite the importance of the concept of neonaticide, few studies have systematically investigated Resnick's observations (6–10).

In Brazil, women who kill newborn children are traditionally indicted for infanticide and not for murder or manslaughter. Penalties are lighter for infanticide (from two to six years in prison) as compared to murder (from 6 to 20 years in prison). Under the old Brazilian Penal Code of 1890 (298), a newborn murderer would be indicted for infanticide if she had been solely driven by the need of “preserving her honor.” Under the current Brazilian Penal Code (123), passed in 1940, infanticide is defined as resulting from “the influence of puerperal state” on the mother's mental functioning. In cases where the jury decides that this “influence” can not be demonstrated, the suspects are indicted for murder.

This paper reports the findings of a retrospective review of 53 cases from 1900 to 1995 where women were charged with killing their children within 24 h of birth in the city of Rio de Janeiro. We investigated the demographic characteristics of the mothers and the victims, the circumstances surrounding the offense, the mother's motivation and state of mind at the time of the offense, the legal process, and follow-up data. We hypothesized that socio-demographic characteristics, clinical presentation, and motivation of women charged during the 1900–1939 time period would not be significantly different from those of women charged during the 1940–1995 period despite changes in socio-economic conditions and in the legal system. The method of murder and the victims' gender, weight, and social status were also expected to remain constant. We did hypothesize that changing legal definition of infanticide would result in differences in disposition. However, we felt that some elements of the neonaticidal mothers' profile like educational level and occupation would change as Brazil makes the transition to a modern industrialized country.

Methods

All adjudicated cases of newborn murder committed in the city of Rio de Janeiro, Brazil, between 1900 and 1995 were studied. Resnick's (5) definition of neonaticide was employed. Brazilian law proscribes that every legal document concerning murder and

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infanticide must be kept indefinitely. After the trial or if the charges were dismissed, these documents were stored in the "Rio de Janeiro State Archive of the Justice Courts." Most of them were well preserved and contained detailed reports of the offenders' personal data, actions, and allegations, witness testimony, autopsy findings, and legal procedures. With a State Supreme Court special permission, one of the authors (M.V.M.) read successively more than 10,000 cases and selected those in which a woman was charged with killing her child within 24 h of birth. For a case to be included in our study, autopsy findings had to demonstrate that the child was born alive and that death resulted from violent causes. In all cases, the mother was the only suspect and the only person ever charged for the offense.

In an attempt to investigate the impact of changes in the legal system on the characteristics of individuals who committed neonaticide, we divided our cohort into two subgroups. The first subgroup (26 cases) was comprised of cases that occurred between 1900 and 1939, under the Penal Code of 1890. The second group (27 cases) consisted of cases that occurred between 1940 and 1995, under the Penal Code of 1940. The characteristics of neonaticidal women, victims, offenses, and legal procedures of both subgroups are compared and contrasted.

Statistical Analysis

The mean values and the standard deviations of descriptive data are reported. Pearson's goodness of fit Chi-square test was used to analyze categorical data and 2-tailed t-tests were used to analyze continuous data.

Results

The Victims

Seventy-two newborns were recorded as murder victims in the city of Rio de Janeiro between 1900 and 1995. Seventeen cases in which the murderer was not identified were excluded from our study. A fire destroyed all documents for two other cases. Analyses were based on 53 cases in which the biological mother was charged with killing the neonate. Twenty-six offenses were committed between 1900 and 1939, under the Penal Code of 1890, and 27 cases occurred between 1940 and 1995, under the Penal Code of 1940. Thirty victims (56.6%) were boys and 23 (43.4%) were girls. Average weight was 3.066 ± 0.656 kg (minimum = 1.850 kg, maximum = 3.890 kg). Only one victim showed signs of prematurity. Forty-two victims (82.4%) were first-born children. Fifty-one of 53 victims were illegitimate. There were no statistically significant differences between the subgroups.

The Neonaticidal Mothers

Mothers were the only persons criminally charged in all cases of newborn murder. Their age ranged from 17 to 48 years, with the mean age of 22.5 years ($SD = 5.3$ years). Table 1 describes the socio-demographic characteristics of the neonaticidal women. The majority were poorly educated, non-Caucasian, single, and employed as live-in maids who had migrated to Rio de Janeiro from the countryside. When literacy rates for neonaticidal mothers from the first period (1900–1939) and the second period (1940–1995) were compared, there was a significant increase in literacy from 1940–1995. During the first period, only 6 out of 22 women were literate while 18 out of 26 women were literate during the second time period ($\chi^2 = 6.80$, d.f. = 1, $p = .009$).

TABLE 1—Socio-demographic characteristics of neonaticidal women.

	Total <i>n</i> = 53 (%)	1900–1939 <i>n</i> = 26 (%)	1940–1945 <i>n</i> = 27 (%)
Age (mean \pm SD years)	22.5 \pm 5.3	22.04 \pm 4.46	22.81 \pm 5.99
Ethnic origin*	42 (79.2%)	20 (76.9%)	22 (81.5%)
Caucasian	11 (26.2%)	4 (20%)	7 (31.8%)
African-Brazilian	12 (28.6%)	9 (45%)	3 (13.6%)
Mulatto	18 (42.9%)	6 (30%)	12 (54.5%)
Indian	1 (2.4%)	1 (5%)	0
Unknown	11	6	5
Marital status	51 (96.2%)	24 (92.3%)	27 (100%)
Single	43 (84.3%)	20 (83.3%)	23 (85.2%)
Married	6 (11.8%)	3 (12.5%)	3 (11.1%)
Widow	2 (3.9%)	1 (4.2%)	1 (3.7%)
Unknown	2	2	0
Occupation	53 (100%)	26 (100%)	27 (100%)
Maid	48 (90%)	25 (96.2%)	23 (85.2%)
Seamstress	2 (3.8%)	0	2 (7.4%)
Other jobs	2 (3.8%)	1 (3.8%)	1 (3.7%)
No occupation	1 (1.9%)	0	1 (3.7%)
Place of birth	50 (94.3%)	25 (96.2%)	25 (92.6%)
City of Rio de Janeiro	6 (12%)	3 (12%)	3 (12%)
Other parts of Brazil	42 (84%)	20 (80%)	22 (88%)
Other countries	2 (4%)	2 (8%)	0
Unknown	3	1	2

* All figures in bold italic report the number and percentage of known (valid) cases. All other percentage figures are based on the number of valid cases unless stated otherwise.

Obstetric history was available in 50 cases. Eighty-two percent of the women had been nulliparous and 17.6% had at least one child. The mean number of children was 0.49 ($SD = 1.61$). Two neonaticidal women reported having one induced abortion (mean = 0.04, $SD = 0.2$).

The Offense

Table 2 describes the cause of death for the neonates: there was a single cause of death in 81% of the causes reported. There were no statistically significant differences in cause of death for the 2 different time periods.

The Circumstances Surrounding the Offense

Forty-five women (86.5% of the 52 cases in which this information was available) tried to systematically conceal the pregnancy from others, but only 38.5% were able to do so. Eight percent stated that they were unaware being pregnant and were surprised by the delivery. Forty-eight women (92.3%) admitted they knew they were pregnant. In four cases (7.6%), pregnancy was kept secret only from the employers. Only 5.8% of the women publicly acknowledged being pregnant.

In all cases where information was available, delivery took place in non-medical settings. In 76.9% of the cases, birth took place secretly in their employer's home. Eight neonaticidal women gave birth in their own homes, two while they were in the house of relatives, one rented a room especially for delivery and one delivered in an abandoned building.

In all cases, the neonaticidal women attempted to conceal the murder of their offspring. We identified four types of situation which led to the public discovery of the neonaticide. The most prevalent one was the inability to conceal the body of the victim (59.6% of the valid cases). In 21.2% of cases, despite the mothers'

TABLE 2—*The offense.*

	Total <i>n</i> = 53 (%)	1900–1939 <i>n</i> = 26 (%)	1940–1945 <i>n</i> = 27 (%)
Number of causes of death	53 (100%)	26 (100%)	26 (100%)
Single cause of death (SCD)	43 (81.1%)	20 (76.9%)	23 (85.2%)
Multiple causes of death (MCD)	10 (18.9%)	6 (23.1%)	4 (14.8%)
Single cause of death			
Mechanical asphyxia (% of SCD)	26 (60.5%)	14 (60.9%)	12 (78.3%)
Throttling (Th)	11 (25.6%)	6 (30%)	5 (21.7%)
Smothering (Sm)	5 (11.6%)	4 (20%)	1 (4.3%)
Ligature strangulation with a necklace	4 (9.3%)	1 (5%)	3 (13%)
Ligature strangulation with the umbilical cord	1 (2.3%)	0	1 (4.3%)
Drowning	1 (2.3%)	1 (5%)	0
Unspecified	4 (9.3%)	2 (10%)	2 (8.7%)
Head trauma (% of SCD)	13 (30.2%)	5 (25%)	8 (34.8%)
Closed head trauma (CHT)	12 (27.9%)	5 (25%)	7 (30.4%)
Open head trauma	1 (2.3%)	0	1 (4.3%)
Throatlashing (% of SCD)	2 (4.7%)	0	2 (8.7%)
Neglect (% of SCD)	2 (4.7%)	1 (5%)	1 (4.3%)
Multiple causes of death (% of MCD)			
Th + CHT	6 (60%)	2 (33.3%)	4 (100%)
Sm + CHT	1 (10%)	1 (16.7%)	0
Sm + Th	1 (10%)	1 (16.7%)	0
Close chest trauma + CHT	1 (10%)	1 (16.7%)	0
Beheading + toraco-abdominal trauma	1 (10%)	1 (16.7%)	0
Type of lesion	53 (100%)	26 (100%)	27 (100%)
Wounding lesions	41 (77.4%)	18 (69.2%)	23 (85.2%)
Non-wounding lesions	12 (22.6%)	8 (30.8%)	4 (14.8%)

efforts, employers or relatives detected either birth labor or delivery. In 11.5% of cases, postpartum bleeding requiring medical assistance led to discovery. Four neonaticidal women ended up confessing the offense. The identity of those who discovered the occurrence of neonaticide mirrored the factors that led to its discovery: employers (51.9% of valid cases), neighbors (15.4%), relatives (13.5%), physicians (9.6%), dustmen (7.7%), and an anonymous denouncer (1.9%). No statistically significant differences were observed between the two time periods with regard to these factors.

Neonaticidal Women's Admitted Motives and State of Mind

Data concerning the neonaticidal women's admitted motives and state of mind were available in 51 cases. Only 13 neonaticidal women ever acknowledged having killed the victim. Forty-six percent of these women reported having done it because of shame of being pregnant out of wedlock. Eight percent stated that they were afraid of losing their job. Eight percent reported either feelings of shame or fear of being expelled from their parent's home. Thirty-one percent stated that they could not recall the moment of the murder.

Seventy-five percent of the neonaticidal mothers denied having killed the victims and reported that the child was either stillborn or died from natural or accidental causes (like falls) soon after birth. Fifty-five percent of those who denied killing their newborns did not discuss their motives or mental state. Forty-five percent of women did describe their motivation for concealing pregnancy, delivery, and the victim's body. Those reasons were shame, to avoid a family scandal, fear of losing job, and refusal to raise the child.

A total of 17 neonaticidal women reported that the offense occurred while they were in "an abnormal state of mind." Eight women stated they were unable to recall the circumstances of the death of the victim. Nine women reported losing consciousness im-

mediately after delivery and only recovering it after the death of the newborn. These episodes were short-lived, lasting from a few minutes to one hour. The recovery was always spontaneous. A comparison between neonaticidal women of the first (1900–1939) and second (1940–1995) periods demonstrated that the proportion of women reporting "abnormal states of mind" increased dramatically after 1940: 2/26 versus 15/27 ($\chi^2 = 11.82$, d.f. = 1, $p < .001$).

Psychiatric Assessment

Eleven neonaticidal mothers were referred for psychiatric assessment by courts, but only nine were evaluated. The proportion of women referred to psychiatric assessment increased greatly after 1940: 2/26 versus 9/27 ($\chi^2 = 3.85$, d.f. = 1, $p = .05$). Four of the women examined had previously reported abnormal states of mind during the offense. One offender received the diagnosis of mild mental retardation, all the other women were found to be sane and did not meet criteria for any psychiatric disorder. In all the cases where perpetrators claimed to be amnesic, expert witnesses refuted the claim.

The Legal Process

Data on court procedures were available in 52 cases. Seven neonaticidal women were not indicted. Of the 45 women indicted, 42% were indicted under the Penal Code of 1890 and 58% under the Penal Code of 1940. Thirty-six neonaticidal mothers were charged with infanticide and nine with murder, which were rendered under the Penal Code of 1940. Twenty-one indicted women were tried and 12 were acquitted. Nine were convicted of infanticide, four under the Penal Code of 1890 and five under the Penal Code of 1940. Four convicted offenders were sentenced to imprisonment (all under the Penal Code of 1890). Five convicted offenders were given probation (all under the Penal Code of 1940). Prison

sentences ranged from 12 to 36 months (mean = 24.11 months, SD = 8.31 months). No offenders were convicted of murder and none were remanded for psychiatric care. Twenty-four indicted women were not tried due expiration of the statute of limitations. The proportion of cases where the offense was dismissed due to expiration of the statute of limitations almost doubled after 1940: 32% versus 59.3% ($\chi^2 = 3.88$, d.f. = 1, $p = .049$).

Follow-up

Follow-up records were available in 11 cases (20.8%), one from the first subgroup and 10 from the second one. The period covered ranged from 12 to 148 months (mean = 64.3, SD = 54.4). One offender from the period 1900–1939 died while incarcerated. No recurrences of neonaticide, psychiatric disorders, or criminal activities were reported for individuals with available follow-up data.

Discussion

The socio-demographic characteristics of the neonaticidal women showed a high degree of homogeneity and stability over time. All of the perpetrators in this study were women. Other studies demonstrated that mothers are much more likely than fathers to kill neonates (8,11–13). Most neonaticidal women were not married. Those who were married were separated at the time of the offense and their children were illegitimate. This replicates Resnick's data and supports his conclusion that the social stigma of illegitimacy is a motivation for neonaticide (5).

Reviews of cases of newborn murder committed in major European cities during the XIXth century showed that most killers had a low socio-economic and educational status (14–16). In our urban XXth century Brazilian sample, the neonaticidal mothers' socio-economic characteristics resembled those of urban European neonaticidal women of the XIXth century. Most neonaticidal women were migrant maids and had only limited education. The statistically significant difference in educational status between the two periods evaluated in this study suggests that neonaticidal women's socio-economic profile is improving in urban Brazil, albeit at a slower pace than in Europe or North America. These findings are in accord with a recent neonaticide case series reporting that several offenders in USA were high-school or college students (17).

Marks and Kumar (8) categorized the method of killing according to the degree that it involved uncontained physical aggression. They defined two major categories: "wounding violence" involves killing by shaking, throwing to the ground, hitting, strangling, stabbing, and shooting while "non-wounding violence" involves murder by suffocating, gassing, drowning, and poisoning. In their series, 32% of the newborn victims died from neglect, 48% were killed in a non-wounding way and only 18% with wounding. Contrary to their report, our findings revealed that "wounding violence" largely prevailed over "non-wounding violence" (77.4% versus 22.6%); deaths from passive neglect or abandonment were rare.

Two factors may account for this difference between our findings and those of Marks and Kumar (8). First, weather in the city of Rio de Janeiro is mild, making death from exposure improbable. Second, unlike Marks and Kumar (8), we analyzed an urban sample. The chances of successfully committing neonaticide and escaping undetected are presumably less in an urban environment. Forty-two neonaticidal women in our series delivered secretly in a house owned by another person who was unaware that a birth was taking place. The necessity of hastily suppressing the first cry of the newborn may have led several neonaticidal women to use more violent means to kill the neonates.

Only three women who committed neonaticide had publicly acknowledged their pregnancy. While 49 women tried to conceal the pregnancy, only four actually denied knowing being pregnant. In a study reported by Brezinka et al. (18) involving 27 women who denied knowing being pregnant, there were no cases of newborn murder. True denial of pregnancy was rare in our sample of neonaticidal women (7.5%); most of the times the women made a conscious effort toward keeping the pregnancy concealed.

The socio-demographic characteristics of the individuals responsible for identifying and reporting suspected neonaticides cases differed across studies. In USA, most suspected newborn murders were identified by either finding the victim's body or the mother being seen in an emergency room complaining of vaginal bleeding (19). In our study, in 51.9% of the time employers reported the crime. The most probable explanation for this finding is that the majority of perpetrators were maids who lived and gave birth in their employers' house. Concealing birth labor, delivery, postpartum bleeding and the victim's body inside another person's house is understandingly difficult. This bias may have at least partially shaped the socio-economic profile of neonaticidal women in our study. Presumably, more resourceful and financially well off offenders might have increased odds of escaping identification. Marks and Kumar (8) believe that many cases of neonaticide never come to light. The seventeen cases of newborn murder without an identified offender might represent a subset of neonaticidal mothers from more affluent socio-economic classes.

Seventeen neonaticidal mothers reported "abnormal states of mind" suggestive of psychogenic amnesia. Psychogenic amnesia has been described in 30–40% of homicide cases (20). According to Taylor and Kopelman (21), three circumstances are usually associated with amnesia: (1) cases in which the victim is closely related to the offender, the offense is performed in the spur of the moment and takes place in a state of increased emotional arousal; (2) chronic alcohol abusers who commit a crime when severely intoxicated; and (3) a small number of schizophrenic patients who commit criminal acts when floridly psychotic. In our study, all purported amnesic women would fit Taylor and Kopelman's first category. None were chronic alcohol abusers or schizophrenic.

The postulate that a subgroup of neonaticidal women may have killed their newborns during a dissociative state merits systematic investigation. To date, supporting evidence has been circumstantial. Available evidence suggests that neonaticidal women from different countries [England (6), USA (22), and France (23)] and cultural backgrounds report similar amnesic states, indicating that it may be a universal phenomenon. In our study, court psychiatrists evaluated four neonaticidal women who reported dissociative episodes and determined that their claims were unfounded.

There was a remarkable increase in the number of referrals for psychiatric assessment and in the number of women claiming they were amnesic at the time of the murder during the second period (1940–1995). The most parsimonious explanation for the finding is to assume it to be stimulated by the modification of the Brazilian Criminal Code which occurred in 1940. This newer legislation required the defendants to demonstrate that they were in an "abnormal state of mind" in order to be tried for infanticide rather than murder. The sentences for those found guilty of infanticide are significantly less punitive than the sentences for individuals found guilty of murder.

Only 17.3% of the neonaticidal women tried in the Brazilian Court system were convicted. Sentences were relatively light (average of 24.1 months) while law prescribes sentences ranging from

2 to 6 years. After 1940, every convicted offender was placed on probation. Our results replicate Resnick's (5) findings that few women are convicted of neonaticide and that those who are convicted receive very light sentences. Unlike previous studies (6,7), Brazilian judges did not require perpetrators to seek psychiatric treatment.

There was a significant change in the type and length of the sentence imposed on women convicted of neonaticide. Women convicted during the 1900–1939 period were more likely to go to prison. Women convicted between 1940 and 1995 received probation. This difference may reflect a change in Brazilian Criminal Code which automatically granted probation to first-time offenders sentenced to less than 2 years in prison. There was also a significant increase during the 1940–1995 period in the number of cases where the statute of limitation had expired. The massive increase in the population of Rio de Janeiro and the explosion in the number of violent crimes that occurred may help account for this finding.

Our review of 53 cases of newborn murder committed in Rio de Janeiro, Brazil, between 1900 and 1995 represents the first attempt to systematically investigate the characteristics of neonaticidal women, their victims, the offense, and the ensuing legal outcomes in a single urban area for an extended period of time. Our results support Resnick's original description of the socio-demographic, clinical and motivational profile, and of the legal disposal of neonaticidal women (5). This study is the first to investigate the impact of modifying the criminal code on sentencing of neonaticidal women. Increased educational status, increased incidence of reported psychiatric symptoms, increased referral for psychiatric assessment, and greater frequency of cases with expired statute of limitations differentiated the 1940–1995 from the 1900–1939 subgroups.

There are several limitations to this study. First, as data regarding the number of deliveries in the city of Rio de Janeiro during the period of our study were not available, no epidemiological inferences can be made. Second, our investigation was restricted to a single large city in Brazil, a feature that limits the study's generalizability. Third, the data used in our study were originally gathered for legal purposes. Consequently, some aspects of these data may have not been thoroughly investigated to satisfy the rigor of scientific standards. Fourth, an unknown number of newborn murderers were never identified. Neonaticidal women who escaped detection may represent a socio-demographically distinct group that can not be studied with the methods we have employed. Finally, due to the relatively small size of our subgroups (1900–1939 group, $n = 26$; 1940–1995, $n = 27$), our statistical analyses were limited and offered only preliminary results. Nonetheless, the present study represents a first step toward integrating data from other urban and rural areas, which would help in designing prospective studies.

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