Maternal Infanticide Associated With Mental Illness: Prevention and the Promise of Saved Lives

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Objective: Although maternal infanticide is a rare event, a high proportion of cases occurs in the context of postpartum mental illness. The author reviews historical, legislative, and contemporary psychiatric perspectives on infanticide and discusses ways in which the psychiatric community can improve prevention of infanticide and promote appropriate treatment of mentally ill women who commit infanticide.

Method: The case of *Texas v. Andrea Yates,* involving a mother with mental illness who drowned her five children, is used to illustrate society's complicated reactions to infanticide in the context of postpartum mental illness.

Results: In the United States, the complexity of the response to infanticide is demonstrated by the judicial system's reaction to such cases. Whereas England's Infanticide Law provides probation and mandates psychiatric treatment for mothers with mental illness who commit infanticide, "killer mothers" may face the death penalty in the United States. Contemporary neuroscientific findings support the position that a woman with postpartum psychosis who commits infanticide needs treatment rather than punishment and that appropriate treatment will deter her from killing again. Psychiatrists have a vital role in recognizing the signs and symptoms of peripartum psychiatric disorders, particularly postpartum psychosis, and in early identification of and intervention with at-risk mothers.

Conclusions: The absence of formal DSM-IV diagnostic criteria for postpartum psychiatric disorders promotes disparate treatment under the law. The psychiatric community should develop guidelines for the treatment of postpartum disorders, foster sharing of knowledge between psychiatry and the law, and do more to enlighten society about the effects of mental illness on thought and behavior so that decisions about the treatment and punishment of mentally ill persons will not be left exclusively in the hands of the judicial system.

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Maternal infanticide, or the murder of a child in the first year of life by its mother, is a subject both compelling and repulsive. The killing of an innocent elicits sorrow, anger, and horror. It is a crime. It demands retribution. That is the law (1).

Yet the perpetrator of this act is often a victim too, and that recognition makes for a more paradoxical response. On the one hand is the image of a defenseless infant, killed by the person he or she depended on for survival. On the other hand is the image of a mother, insane and imprisoned for a crime unthinkable to many. These competing images elicit ambivalence, if not outrage. Such contradictions represent the theme of this article, which is motivated by the dearth of up-to-date, research-based literature and by recent cases of infanticide committed by mothers with mental illness that have been reported in the media (1).

In June 2001, the U.S. public was riveted when the media revealed that Andrea Yates had drowned her five children in the bathtub of her Houston, Texas, home (2). Perhaps no other case of infanticide or filicide (murder of a child age >1 year) (3) has demonstrated the paucity of our medical and legal knowledge and understanding of postpartum psychosis and associated infanticide.

Andrea Pia Yates was a devoted mother who homeschooled her children. Although she was pregnant and/or breast-feeding over the previous 7 years, she cared for her bedridden father as well as her own growing family, which included Noah, age 7 years; John, age 5; Paul, age 3; Luke, age 2; and Mary, age 6 months. Mrs. Yates had a history of psychiatric illness and a first reported psychotic episode after Noah's birth in 1994. At that time she told no one because she feared Satan would hear and harm her children. Two suicide attempts after her fourth pregnancy were driven by attempts to resist satanic voices commanding her to kill her infant (1).

Six months after the birth of her fifth child, witnesses reported that Andrea Yates appeared "catatonic" and walked around the house like a "caged animal." After two psychiatric hospitalizations, she continued to deteriorate. When her psychiatrist discontinued her antipsychotic medication, she became floridly psychotic. She stated that Satan directed her to kill her children to save them from the fires and turmoil of hell. This time she could not resist.

Mrs. Yates was charged with capital murder with possible penalty of death. She requested a razor to shave her head and reveal the "mark of the beast—666" that she believed was on her scalp. She said, "I am Satan." After only 3 and one-half hours the jury returned a guilty verdict. The prosecution sought the death penalty. After 35 minutes of deliberation, the jury elected a prison sentence for life (2).

The trial of Andrea Yates attracted national attention (4). Advocates for mentally ill persons blamed the outcome on the quality of the insanity defense and the troubling nature of the expert psychiatric witnesses, whose opinions differed remarkably. The case also aroused the attention of organizations dedicated to postpartum disorders, such as Postpartum Support International and the Marcé Society for Treatment and Prevention of Postpartum Disorders. Representatives of these organizations requested clarification of DSM-IV diagnostic criteria for postpartum disorders, improved medical education, guidelines for treatment, and consideration of infanticide legislation.

After Mrs. Yates's sentencing, APA issued a public announcement on the insanity defense and mental illness (5):

> The American Psychiatric Association hopes that the Yates case will lead to broad public discussion of how our society and its legal system deals with defendants who are severely mentally ill.
>
> Advances in neuroscience have dramatically increased our understanding of how brain function is altered by mental illness, and how psychotic illness can distort reality.…Unfortunately, public understanding has not kept pace with these advances.
>
> A failure to appreciate the impact of mental illness on thought and behavior often lies behind decisions to convict and punish persons with mental disorders.…Prisons are overloaded with mentally ill prisoners, most of whom do not receive adequate treatment. Defendants whose crimes derive from their mental illness should be sent to a hospital and treated—not cast into a prison, much less onto death row.

To determine how to address the case of a mentally ill defendant, the courts rely on scientific knowledge that is accepted in the medical community (6). The single most important piece of judicial evidence for the existence of a clinical entity lies in the description of the phenomenon in peer-reviewed literature. The dearth of descriptive symptoms for disorders associated with infanticide, including postpartum psychosis, leaves the expert witness with few scientific tools. Absent systematic clinical descriptions or research-based case reports, each act is judged in isolation, with little or no regard for similar cases (7).

And so the case of *Texas v. Andrea Yates* was tried in the media and courts with little intervention from the psychiatric community. As with other tragedies, the horror of infanticide diminishes as denial takes its place in our psyche. Inevitably we are shocked when it happens again.

History and Epidemiology

The dearth of research-based literature on infanticide is matched by gross underreporting of infant deaths. Overpeck (8) analyzed statistics on maternal infanticide and concluded that maternal infanticides may be among the least well-documented deaths in the United States. This finding is particularly true for neonaticide or infant murder in the first 24 hours after birth. Systematic data on the prevalence of infant murder is rare. According to available death certificate records, one infant under age 1 year is killed every day in the United States (9), yet the national rate may be double that number (10, 11).

According to Herman-Giddens et al. (11) and Ewigman et al. (12), death certificates provide little information about infanticides and other child fatalities resulting from abuse or neglect. Death certificates do not document the nature, cause, and prevalence of these deaths and do not provide information on the relationship of perpetrators to the infant (8, 13). This scarcity of information limits the opportunity for analyses based on comprehensive data.

How do we understand this lack of information gathering? Conceivably it is caused by our own complicated and inconsistent response to such tragedies.

Society's paradoxical response to infanticide dates to ancient times (14), when infants were sacrificed to pagan gods (1). Ancient Greeks exposed unwanted newborns to the elements as a method of population control. "Overlaying," in which the mother lies on the infant, smothering it to death, was a common method of infanticide in Europe during the Middle Ages and was described as a venial sin in priests' prayer book of penance (15).

Over time, societies adopted laws to prevent infanticide, and punishments became increasingly severe (16, pp. 430–468). By the 17th century, in North America and England, infanticide was so common that concealment of a murdered newborn became a capital offense (14, 15). One method of punishment was "sacking," in which the woman perpetrator was placed in a sack with a dog, a cock, and a snake and thrown into a body of water. Such early legal statutes evolved into the contemporary and contrasting legal views of infanticide across the United States, the United Kingdom, and other Western countries.

In 1647, Russia became the first country to adopt a more humane attitude, and by 1888, most European states except England had established a legal distinction between infanticide and murder by assigning more lenient penalties in the case of infanticide by a mother with mental illness (15). In 1922, England passed the Infanticide Act (which was amended in 1938) in recognition that women were biologically vulnerable to psychiatric illness at the time surrounding childbirth. The law made infanticide a less severe crime than it had been previously and mandated sentences of probation and psychiatric treatment for women who were found guilty. By the late 20th century, 29 countries had adjusted the penalty for infanti-

cide in recognition of the unique biological changes that occur at childbirth (15). In contrast, a woman convicted of infanticide in the U.S. judicial system may face a long prison sentence or even the death penalty. Due to the scarcity of psychiatric treatment in the overcrowded U.S. prison system, these women may exit the system in their childbearing years with the same psychopathology that brought them into prison. And yet, the prevalence of infanticide in countries where treatment is mandated is no different than that in countries where punishment is mandated (17).

Limited diagnostic guidelines leave sentencing and treatment decisions in the hands of the U.S. courts with little or no contribution from psychiatry. The scarcity of contemporary research on childbirth-related psychiatric diagnoses leaves room for doubt that the judicial system can function justly or effectively (15).

Although several attempts have been made to classify infanticide, the literature has relied on retrospective and outdated accounts from sources that vary in quality. Moreover, these classifications have been incorrectly used to determine motive and, therefore, punishment. In fact, there is no one cause or motive for infanticide, and treatment and prevention are multifactorial (18, 19). On the basis of their research on hundreds of contemporary accounts of infanticide from the media and legal databases, Meyer and Oberman (19) described five broad categories of contemporary infanticide cases based on social, cultural, and economic variables. To my knowledge, theirs is the largest documented contemporary sample of American women who have killed their children (20).

The first category is neonaticide, killing of a newborn within 24 hours of birth, a crime that typically involves young women for whom pregnancy is unwanted. This category likely involves two groups of women: a subset of women with profound denial and dissociative states and women who deliberately hide their pregnancies.

Psychiatric evaluation of those with denial of pregnancy reveals dissociative states that are often associated with a history of early abuse and chaotic family life (21). The pregnancies of these women often proceed without the usual signs and symptoms of pregnancy. Deliveries are unassisted and occur in secret, and these women report experiences of depersonalization surrounding the birth, such as watching themselves deliver with "not much pain." Many experience a brief dissociative psychosis. The infant succumbs without benefit of resuscitation or as a result of murder by the mother.

A second category of infanticide involves women who kill their children in conjunction with a violent and abusive male partner. A third category involves infants who die because of neglect (19), as a result of the mother's distraction or preoccupation with other tasks. The fourth category comprises women whose efforts to discipline their children have gone awry, leading to abuse of the children (19). The fifth category involves purposeful infanticide, which may or may not be due to a mental illness, such as schizophrenia (22), postpartum depression, or postpartum psychosis. The primary focus of this paper is infanticide associated with postpartum psychosis.

Women with chronic mental illness such as schizophrenia are more likely to kill an infant because of postpartum stressors or symptom exacerbation associated with discontinuation of medication. Postpartum depression may or may not be associated with psychosis. Nonpsychotic depressed women are unlikely to commit infanticide. Should they do so, they are more likely to kill for what they consider to be altruistic purposes, as described in the following vignette (5):

Ms. A, a school psychologist, gave birth to a healthy baby girl. She became depressed over the first 3 weeks postpartum. She became increasingly guilty, believing that she was a bad mother. As her anxiety mounted, she experienced ego-dystonic obsessional thoughts about harming her infant, including thoughts of throwing the baby off the changing table or out of the window. (Such ego-alien thoughts are frequently experienced by women with postpartum depression. However tortured they are by such thoughts, these women usually do not act on them unless they achieve psychotic proportions.) Ms. A planned her suicide. Because she believed that her baby could not safely survive in the world without her, she held her in her arms when she jumped in front of a train.

Medical and Legal Dilemmas

Like accounts of infanticide, accounts of postpartum psychosis date to antiquity (23, 24). More than 2,000 years ago, Hippocrates described postpartum psychosis as a kind of madness caused by excessive blood flow to the brain (25–27). In 1838 Esquirol (28) recognized a high incidence of delirium with disturbances of perception and consciousness and with marked changeability of mood. Marcé (29), as well as contemporary experts such as Brockington (16, 30–32), later corroborated this picture of cognitive and sensory dysfunction in postpartum psychosis.

In 1858, Marcé (29) published the first textbook on postpartum disorders, *Traité de la folie des femmes enceintes*. In his sample of 310 cases of postpartum psychiatric illness, he described particular qualities—including agitation, delirium, bizarre and changing delusions, and loss or distortion of memory for acute episodes—that distinguished these cases from cases of nonpuerperal psychoses. Wild mania was followed by severe melancholia. Marcé believed the symptoms were clues to specific organic mechanisms (33). "The coexistence of the organic state," explained Marcé, "raises an interesting question of pathologic physiology; one immediately asks if there exists a connection between the uterine condition and disorders of the mind" (29, pp. 7–8). This clinical intuition predated our current knowledge of the hypothalamic-pituitary-ovarian axis.

A delirium-like, disorganized, labile clinical picture of postpartum psychosis has been observed and repeatedly reported by contemporary researchers (30, 31). The descriptions of fluctuating affect lend support to the contemporary theory of an underlying bipolar disorder diathesis (34). In addition, Wisner's group (32) described a "cognitive disorganization psychosis" in women with childbearing-related psychoses. In their study, the postpartum group demonstrated thought disorganization, bizarre behavior, confusion, lack of insight, delusions of persecution, impaired sensorium/orientation, and self-neglect, a clinical picture consistent with delirium. Cognitive impairment was demonstrated by neuropsychiatric testing.

These psychotic postpartum women also have more unusual psychotic symptoms, such as tactile, olfactory, and visual hallucinations consistent with an organic psychotic presentation (32). Waxing and waning episodes of impaired sensorium and disorganization associated with amnesia are found in the postpartum woman who looks well at one moment and is floridly psychotic in the next. She may be compelled to commit violent acts despite lucid behavior in other contexts. This biologically driven state presents as a toxic organic psychosis (35), complicated by affective mood changes consistent with a bipolar disorder clinical picture (34).

Despite this clinically observed organic psychotic presentation, there is no formal diagnostic category for this phenomenon. The consequences are threefold. First, the psychiatrist unfamiliar with the literature describing this condition may not be aware of the unpredictable nature of the psychosis and may be less cautious about the potential danger to the infant. Second, because this waxing and waning presentation is consistent with the clinical picture of a woman who commits infanticide, this very mood lability becomes the cause for her indictment or is used as evidence against her (2). Third, postpsychotic amnesia common to organic states creates further doubts about her honesty. The woman may show a confused "zombie-like" state or a lucid state, which places the existence of florid psychosis in question. For example, in the case of Andrea Yates, the prosecutors concluded that she could not have been psychotic when she murdered her children because she was later lucid enough to call for help and to report her actions to the police (24).

In sum, the physiological state of childbirth precipitates an organic psychosis similar to other acute metabolic or toxic events, such as thyroid toxicosis or severe physiological deficiencies, and therefore presents in similar fashion (35).

Although this symptom picture is well described in the research literature, postpartum psychiatric illness has no specific diagnostic status in DSM-IV (32). A limited number of DSM-IV diagnoses have the specifier "with postpartum onset" to designate disorders that begin within the first 4 weeks postpartum (36, 37).

Because the courts rely on DSM-IV to "legitimize" a diagnosis, the significance of this illness is minimized in the judicial process and is inadequately conveyed to jurors. Nonetheless, postpartum psychosis has distinct components. First, it has unique precipitants, namely pregnancy and childbirth. Second, it is triggered by a significant neuroendocrine event. Third, the literature consistently describes affective (likely bipolar) psychotic phenomena associated with organic delirium (amnesia, impaired sensorium, and cognitive dysfunction). Fourth, cognitive disorganization is reliably reported and demonstrated by systematic investigation and objective neuropsychiatric testing.

The potential benefits of a formal diagnosis of postpartum illness would include greater awareness and education in the psychiatric community and greater likelihood of early identification and prevention of infant mortality. The risk of challenging the standard method of choosing criteria for diagnostic consideration in DSM-IV must be weighed against the potential benefit to maternal and infant health.

Vulnerability Versus Culpability: Neurohormonal Aspects of Postpartum Disorders

The basis of infanticide legislation in most countries besides the United States reflects concern for the biologically "vulnerable" mental state of women after childbirth, the time of peak prevalence for psychiatric illness in women. The neurochemical changes at parturition include the rapid fluctuation in levels of estrogen, progesterone, and other gonadal hormones produced during pregnancy and their precipitous loss at birth, as triggers to CNS neurotransmitter change (35).

Since many studies have shown that the gonadal steroids have multiple mood modulator effects, the focus in exploring the etiology of the postpartum illnesses is the withdrawal effect of the gonadal pregnancy hormones (38). The physiological processes of parturition begin as some hormone levels, which have increased 200-fold over the course of gestation, rapidly decline within 24 hours, along with the immediate loss of the placenta, which was the source of many hormones of pregnancy. Some studies have suggested that estradiol plays a role in the pathophysiology of postpartum disorders and may be therapeutic in postpartum affective states (39–41).

Ahokas et al. (39) supported this hypothesis in a study of 10 women with ICD-10 postpartum psychosis who had baseline serum estrogen levels consistent with gonadal failure. In another study, the rate of relapse of psychiatric symptoms in women with previous histories of puerperal psychosis and depression diminished significantly with treatment with sublingual 17-β-estradiol (40).

Bloch et al. (41) provided evidence for the role of reproductive hormones in the development of postpartum de-

pression. The researchers induced a hypogonadal state in nonpregnant women by administration of leuprolide. Adding back supraphysiological doses of estradiol and progesterone for 8 weeks, then withdrawing both steroids under double-blind conditions, simulated childbirth. Five of eight women with a history of postpartum depression developed mood symptoms, and women without this history did not develop symptoms.

The fact that clinical research continues to demonstrate the role of these neurophysiological mechanisms in the etiology of childbirth-related psychiatric disorders suggests the need to reconsider contemporary U.S. legislation related to infanticide. The challenge for psychiatry is to educate the legal community and the juries. The task for the expert witness is to communicate our scientific knowledge of biologically based factors to the jury—to use the courtroom as a classroom and to encourage verdicts based on informed understanding of the facts.

Postpartum Syndromes, Disparate Treatment in the Law

A history of treatment for postpartum syndromes has been admitted into evidence in both criminal and civil courts (27). In the United States, postpartum syndromes can become relevant in criminal proceedings at several points, including evaluation of competency, pleading, and sentencing. However, because postpartum psychosis is transient and treatable, most women are not experiencing postpartum symptoms by the time of trial (24). If no diagnostic standard exists for postpartum illness, women who commit infanticide may receive sentences that vary remarkably.

The two main formulations of the insanity defense used by American jurisdictions are the M'Naghten Test (42) and the Model Penal Code/American Law Institute Test (43). Psychosis of itself does not determine the legal definition or defense of insanity. Depending on the state, the defendant must pass the test of that jurisdiction in order to be found not guilty by reason of mental illness. Therefore, a woman who receives a prison sentence in one state could receive the death penalty in another, despite the identical circumstance of the crime. Outcomes vary depending on the state, the county, or even the presiding judge. In some states, no insanity defense exists.

The M'Naghten Test, or the "right and wrong test," was derived from the landmark English case decided in 1843 (42). According to this test, a defendant is judged insane only if she can prove that, because of a mental disability, she either did not know right from wrong at the time she committed the ultimately criminal act or did not understand the nature and quality of that act.

This archaic ruling is the basis for a finding of insanity in the state of Texas, where Andrea Yates was prosecuted. In light of 21st-century neuroscience, it is questionable that a 160-year-old legal case can be applied for accurate determination of a state of insanity. Although cognitive capacity during most psychotic states remains unclear, objective tests have demonstrated cognitive impairment in women with puerperal psychosis, compared to those with nonpuerperal psychosis (30–32). Yet, we in psychiatry continue fruitless attempts to adapt our contemporary scientific knowledge to antiquated legislation. We endeavor to fit our current "square peg" into the obsolete "round hole" of the law.

Although Andrea Yates pled innocent by reason of insanity to capital murder, the prosecution asserted that she knew right from wrong at the time of the killings because she called 911 and her husband after the killings.

The second formulation of the insanity defense used in American jurisdictions is the Model Penal Code/American Law Institute Test. This test provides that a "person is not responsible for criminal conduct if at the time as a result of mental disease or defect he lacks substantial capacity either to appreciate the criminality [wrongfulness] of his conduct or to conform his conduct to the requirements of law" (43). The Model Penal Code/American Law Institute Test has been adopted by about half of the states and by the majority of the federal circuit courts of appeal (44). The test's approach to insanity enjoys widespread appeal because it "views the mind as a unified entity and recognizes that mental disease or defect may impair its functioning in numerous ways" (45). Thus, one prong of the Model Penal Code/American Law Institute Test focuses on the cognitive aspects of behavior, and the other focuses on volitional aspects of behavior. The satisfaction of either the cognitive or volitional prong is grounds for an insanity verdict in a jurisdiction that uses the Model Penal Code/American Law Institute Test.

Because the diagnostic guidelines for postpartum psychiatric illness are limited, there is little information to assist the U.S. justice system (7). In fact, these cases present a virtual "catch-22." In a court of law, the testimony of expert witnesses must be founded on scientific standards that are recognized in the professional psychiatric community. Yet, few psychiatric standards exist for this area. Therefore, the defenses available for women alleged to have committed infanticide are limited to those based on early and outdated literature and laws. Our reluctance to place postpartum disorders within a diagnostic framework often leads to tragic outcomes for women, families, and society. Moreover, it continues to result in disparate treatment for women in the legal system overall.

When the evidence for postpartum illness could assist women's interests, such as in criminal cases, it is often barred from admission (24, 27). Since rules of evidence are typically less strict in civil courts, postpartum syndromes are readily admitted into evidence during civil proceedings (27), where this evidence is almost always used in opposition to a woman's interests. For example, postpartum syndromes can be used in civil courts to harm women with past hospitalization or treatment for postpartum psy-

chosis, despite the fact that they have a treatable illness that is unlikely to recur unless the woman becomes pregnant again, as the following case vignette illustrates (46).

Mr. and Mrs. Grimm were married for 13 years and had three children. After the birth of each child, Mrs. Grimm was hospitalized for postpartum depression. During these hospitalizations, she phoned home daily to speak with her children and had personal visits with them. After the last hospitalization in 1985, Mr. and Mrs. Grimm separated. The children resided with their father, while the mother lived nearby, visited daily, and performed household duties.

Each sought sole custody of the children. Although both were found to be excellent parents, Mrs. Grimm's postpartum depression factored heavily in the custody award. Her treating psychiatrist was called to testify; yet no other testimony regarding the fitness of either parent was addressed. Mrs. Grimm had not been hospitalized for a long period before the separation; however, the court placed custody with Mr. Grimm.

In other civil matters, testimony regarding postpartum depression has been refused. For example, in a 1997 adoption appeal, a biological mother who had given her child up for adoption asserted that postpartum depression rendered her incompetent to consent to the adoption. The Tennessee Appellate Court stated: "We do not dispute that [the mother] was probably depressed or emotionally distraught following this rather traumatic experience, but it is not unusual for there to be depression and distress following the birth of a child, even under the best of circumstances. If emotional distress meant that a parent was always incompetent to consent to an adoption, we would rarely have adoptions in this state" (47).

Punishment Versus Prevention

In most Western countries, legislation addressing maternal infanticide focuses on prevention and rehabilitation. The United States emphasizes punishment. The task of the criminal justice system is to determine the responsibility of the mother in the death of her child and to deliver punishment proportionate to the crime. Meyer and Oberman (19) discussed the justifications for punishment, including deterrence, retribution, and rehabilitation, as follows.

Punishment for deterrence is exemplified in cases of a mother who kills a child after inflicting prolonged abuse. Women in such cases are likely to need punishment to ensure that they understand the limitations imposed on their actions by society and the law. The woman with postpartum psychosis does not need punishment; treatment will deter her from killing again. Today, most countries apply this distinction, along with prevention strategies and parenting education.

The second justification for punishment is *retribution*. This justification is problematic; as Oberman (20) wrote, "To the extent that retribution is justifiable, there must be clearly delineated lines of blame" (p. 15). In cases of infanticide, it often seems difficult to blame a single individual. Inevitably, clues and obvious signs were ignored, leaving one with a sense that there might be more than one blameworthy party.

The final justification for punishment is rehabilitation. However, the overcrowded U.S. prison system cannot provide the treatment and services necessary for rehabilitation. These services can be a condition of probation and can be obtained outside of the prison system.

In England and Wales, a woman who has killed her infant under age 1 year can be indicted for infanticide (17). The legislation, which provides for this charge is contained in the Infanticide Act (48):

> Where a woman by any wilful act or omission causes the death of her child—aged less than a year—but at the time the balance of her mind was disturbed by reason of her not having fully recovered from the effect of giving birth to the child or by reason of the effect of lactation…the offence, which would have amounted to murder, is deemed to be infanticide and is dealt with and punished as if it were manslaughter.

Treatment and probation are mandated in both countries. Scotland has no such provision (17), yet the rates of infanticide and features of victims and perpetrators are similar in the two regions (49). After 80 years of using probation and treatment in lieu of incarceration, the British legal system has demonstrated that this approach is as effective as incarceration in preventing or deterring infanticide, while being considerably more efficient and cost-effective (17, 20, 50, 51).

The questions to ask ourselves, then, are what we seek to gain by punishment and how we can prevent these needless tragedies in the future.

The potential for prevention of infanticide is immense. Unlike other causes of murder, infanticide has known and identifiable precipitants, namely, pregnancy and childbirth. Previous studies have demonstrated a 10%–13.5% prevalence of antepartum depression (52–54). The fact that postpartum depression is the outcome for one-half of women who are depressed during pregnancy (55) emphasizes the need and potential benefit of early identification and intervention. Because the new mother is expected to be unfailingly happy, the stigma of mental illness is even more pronounced at this time in a woman's life. It is not surprising that she often keeps secret any thoughts and feelings of guilt and failure she has experienced.

Pregnant women and new mothers are seen by clinicians in obstetricians' offices, antenatal clinics, and well baby centers. We meet their families and children. They complete questionnaires and are interviewed by physicians, nurses, and social workers. How do we miss the warning signs of potential tragedy in one of the most readily available populations in health care?

Since antepartum screening is the best strategy for identifying women at risk, the prenatal clinic is the optimum environment in which to use simple screening tools and objective mood scales. Reliable assessment tools are available to evaluate maternal mood and assess risk. Although these tools do not replace a diagnostic interview, they facilitate collection of focused information to identify women at risk in time for intervention.

The Edinburgh Postnatal Depression Scale, designed to identify postpartum depression (56, 57), is a brief, simple screen for antepartum changes. A 10-point patient-rated scale of mood symptoms that takes approximately 3 minutes to complete, the Edinburgh Postnatal Depression Scale has been translated into several languages.

A family or personal history of mood disorders is the most important clue in identifying the need for early prophylaxis in postpartum depression. Postpartum depression affects 10%–15% of new mothers, and 1–2/1,000 will have a postpartum psychosis. Recurrence rates range from 20% to 50% (32). Psychopharmacologic intervention before or after delivery is responsible for a large decrease in the recurrence rates of puerperal illness. Clinical trials have demonstrated that administration of an appropriate antipsychotic, mood stabilizer, or antidepressant in the immediate postpartum period can prevent a recurrence of postpartum psychosis, mania, or depression (58–61).

Kendall et al. (36, 37) demonstrated that the peak lifetime prevalence for psychiatric disorders and hospital admissions for women occurs in the first 3 months after childbirth; 58% of maternal infanticides occur within the identical time frame (8). Puerperal psychiatric illness, as a major public health problem, is associated with infant morbidity and mortality. This relationship demands further interest and investigation.

Absent research-based information on the temporal relationship between childbirth and infanticide and without a clinical framework for understanding the diagnoses and clinical phenomena that underlie infanticide, we are in all likelihood missing the signs of potential tragedy, as evidenced by the case of *Texas v. Andrea Yates*.

The Tragedy of the Yates Family: What Can We Learn?

The perilous nature of postpartum psychosis has been repeatedly noted through the centuries. In 1901, John Baker, M.D. (62), wrote:

> The type of insanity most commonly observed amongst these lunatic criminals is delusional mania. The maniacal affection is often associated with delusions of suspicion and persecution and with aural and visual hallucinations; perversion of the sense of smell and taste is sometimes also met with.
>
> [It seems evident]…from a study of the Broadmoar cases, infanticide occurs much more frequently in connection with the insanity of lactation…in such a condition those in attendance would naturally remove the child and guard against the contingency of danger…it begins to dawn on the friends that the mind is gradually giving way, yet owing to some perverse reasoning they defer placing her under asylum care and treatment, even if the woman herself begs to be safeguarded.

Such warnings continue to be disregarded. A series of errors paved the way to the tragic events of June 20, 2001, when Andrea Yates drowned her five children (2). I use these data not to add to the suffering of this family but as a message of caution and hope for the future.

The following factors represent precipitants or missed opportunities for prevention:

- **History of psychiatric illness.** Mrs Yates's early history of excellence in education and of proficiency as a nurse, class valedictorian, jogger, champion swimmer, and exceptional mother was accompanied by an early history of mood swings. She was a "super mom" who homeschooled her children and taught evening Bible study. Nevertheless, she enthusiastically designed crafts, baked cookies, and made costumes into the night. Each delivery was associated with postpartum depression (2, 63).
- **Childbearing history.** Andrea Yates was persistently pregnant or lactating from 1994 to 2001. She spiraled down into mental illness with the birth of each child. Jogging and swimming ceased after the first two pregnancies (64). With subsequent deliveries she became more depressed, overwhelmed, isolated, and impaired (63). Mood states of high energy and a hypereligious focus on Satan and religious doctrine switched to documented worsening depression, psychosis, and suicide attempts. After her last two children were born, she had a total of four psychiatric hospitalizations.
- **Family history of psychiatric illness.** Mrs. Yates's parents and siblings have histories of diagnosed and treated bipolar disorder and major depression (63, 64).
- **Denial, unawareness, and fear of stigma.** After hospital discharge, a catatonic, psychotic Andrea Yates appeared to her friends and family like a "caged animal," staring for hours and scratching bald spots into her head (2). Discussions about Satan's presence were not uncommon in the Yates's home, where a rigid religious belief system dominated the family's life.
- **Psychiatric treatment and family intervention.** Hospitalizations were brief, and discharges were often premature. During a 1999 hospitalization, Mrs. Yates reported to the staff that she was overwhelmed, living in a converted Greyhound bus with her growing family of four children (65). During hospital visits, Mr. Yates was accompanied by his four little boys and infant daughter. Nevertheless, the psychotic mother was discharged to home without family intervention. Although the social worker filed a report with the state's child protec-

tive services agency, the agency did not pursue the case.

- **Inadequate psychoeducation.** Although the couple was warned about recurrence of postpartum illness, Mr. Yates explained that Mrs. Yates would spring back, feel better, and agree to have more children (63). She often refused medication because she was pregnant or lactating. Professional perinatal support and education were not available to teach the couple about puerperal psychiatric disorders, the risks and benefits of pharmacotherapy during pregnancy and lactation, and the use of psychotropic medications for prevention of postpartum psychosis.
- **Inadequate medical education about postpartum disorders.** Postpartum psychosis is a psychiatric emergency. Psychiatrists, nurses, social workers, and professionals along the way missed the signs of danger. Adequate medical education about perinatal illness might have alerted them to the distinct presentation of postpartum psychosis. The fact that a waxing and waning sensorium makes behavior unpredictable demands that mothers must be separated from their infants and/or children.
- **Poor medical management of puerperal psychosis:** For unclear reasons, Mrs. Yates's treating psychiatrist discontinued her treatment with haloperidol 2 weeks before the tragedy. She continued to take mirtazapine and venlafaxine without mood stabilizer augmentation (63).

We as a society failed Andrea Yates and share responsibility for the tragedy. Friends, neighbors, and family members watched as Mrs. Yates continued to decompensate. The medical community failed to provide appropriate protection, social work assistance, and child protective services to a severely psychotic mother of five children. When the legal community and her state failed to appreciate the severity of her illness, they imposed a life prison sentence, which in effect eliminated any opportunity for appropriate treatment.

To date, however, effective strategies for identification, intervention, and prevention of infanticide are glaringly absent from the continuum of antenatal and postnatal care and services. The fact that the insanity defense is nonexistent in some states and extremely limited in others speaks to our society's disregard for mental illness and the rights of those with mental disorders. Until mental illness is addressed with the same dignity afforded to other illnesses, the course will remain unchanged.

Conclusions

As a major public health problem, postpartum psychiatric illness is predictable, identifiable, treatable, and, therefore, preventable. Research methods must be designed to substantiate a cluster of identifiable symptoms and precipitants by using contemporary diagnostic criteria and the biopsychosocial model of psychiatry. Phenomenological studies to identify symptoms will pave the way for treatment strategies and rehabilitation (32).

To develop effective intervention and prevention strategies, further study of the mental states of antepartum and postpartum women who are at risk to commit or have committed infanticide will be required.

Most cases of postpartum infanticide and suicide occur outside of the media focus. Formal DSM-IV diagnostic criteria for postpartum disorders are crucial so that physicians can identify the subtle and potentially dangerous signs of postpartum psychosis to ensure the safety of the mother and the infant. Furthermore, defendants with mental illness who face the criminal justice system have the right to a defense based on scientific fact. Such a defense is essential for equal representation under the law.

Those of us who pursue the goal of prevention will be obliged to override any anger or revulsion we may feel with the compassion and courage to seek a more in-depth understanding of infanticide. We, as a society, could do a far better job of preventing these tragedies (1). What is required of us is to not look away, but to communicate with and learn from these mothers. The great promise of understanding them better will play out in an incalculable number of saved lives.

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