

CAN BABIES REMEMBER TRAUMA? SYMBOLIC FORMS OF REPRESENTATION IN TRAUMATIZED INFANTS

Three important areas of current inquiry concerning early trauma—the respective roles of reality and fantasy, age-related capacity for the symbolic representation of trauma, and attachment status—are approached through clinical case reports of three children seen initially at very early ages. The findings are relevant to the issue of whether preverbal infants can experience traumatic events that later are available to interpretation. The focus is for the most part on event traumas—single harrowing, life-threatening experiences—occurring at quite early ages. Three main points are emphasized. First, toddlers and infants (including neonates) can experience intense pain and show symptoms of traumatization. They are capable of experiencing an event as harrowing and life-threatening. Second, these events are capable of being memorialized or symbolically represented, that is, stored in memory in a way that can affect later behavior and learning. Third, how that traumatization resolves itself, or fails to, can be decisively affected by the functioning of the attachment system.

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Psychoanalysis is at the tail end of a three-decades-long reassessment of the pathogenesis of early trauma from endogenous and exogenous sources. Moving from a model that privileged the role of

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fantasy in symptom formation, the field now credits the realities of early trauma, including the trauma of early separations, in ways inconceivable some thirty or forty years ago. This development has been paralleled, and in some instances augmented by, complementary developments in pediatrics, child psychiatry, developmental psychology, and the neurosciences.

A BRIEF HISTORY OF THE ANALYTIC UNDERSTANDING OF EARLY TRAUMA

Freud (1926) defined trauma as the experience of overwhelming affect in response to an event. We know that experience of trauma is determined by several factors: the magnitude of the threat posed by the event; the person's developmental lens for understanding the event at the time (occasioning what Erreich [2015] calls naive misinterpretations); the person's temperament (high or low sensory thresholds); a history of previous traumas; and the meaning the event has for the individual given its *après-coup* elaborations in fantasy.

All these factors shape the experience of trauma generally. Fundamental issues arise as to whether an infant can in fact experience an event trauma in a truly traumatic way and, if that is possible, whether the trauma can be mentally represented and remembered. Related to these issues is one that in recent decades has become increasingly prominent and that is of great practical importance in working clinically with children and their parents: namely, how the child's attachment relationship functions to ameliorate or exacerbate early trauma.

To anticipate a later discussion, the attachment relationship appears not only to impact the degree of the child's recovery from early trauma but also to shape how the trauma is incorporated into the child's developing autobiographical narrative. The upshot is that in most cases we can expect to find a complex clinical picture in which it is difficult, though not impossible, to disentangle the various issues.

This complexity is certainly not new in clinical psychoanalysis. Freud himself was initially moved to credit the etiological significance of early trauma (i.e., trauma before the age of six) and to identify a variety of traumatizing agents, though his experience was that the traumas had to be reconstructed (for a detailed historical review, see Schimek 1987).

This, of course, was long before attachment had become established as a necessary foundation for the child's psychological development, and before the idea of cumulative trauma had been introduced (Khan 1963; see also Erreich 2003); to his credit, however, Freud wrote compellingly about the truly impossible relational conflicts that a parent's "seductive" overtures evoke in the child. Let us say, then, that even in the earliest psychoanalytic formulation of early trauma, the ensuing derailment of attachment was noted and considered important, intertwined as it often was with the impact of the trauma itself. Issues of memory also arose as Freud wrestled with the problem of what could be remembered and put into words.

The history of thinking regarding the interplay of fantasy and reality in relation to trauma is marked by the disastrous conflict between Freud and Ferenczi over the role of reality and trauma in psychic life and the ensuing erasure of Ferenczi's ideas for over half a century. Ferenczi, based on his experience with shell-shocked patients in World War I and his work on trauma within families, proposed a number of ideas that are now canonical (Ferenczi 1932). The experience of trauma fractures minds, Ferenczi believed, and failures of acknowledgment and representation radically worsen its effects.

In what follows I will address three areas of current inquiry concerning early trauma: the respective roles of reality and fantasy, age at the time of the trauma, and attachment status. The findings presented here are also relevant to questions regarding the representational capacities of very young children—that is, the extent to which symbolic representation of a traumatic event is possible in the preverbal child. I will briefly review some of the pertinent literature.

YOUNG CHILDREN CAN BE TRAUMATIZED

First it is necessary to establish something that should no longer be controversial but demands explicit acknowledgment: babies *do* feel pain (Rodkey and Pillai Riddell 2013). Historically, parents and physicians have not wanted to believe that very young children can experience excruciating physical or psychological pain and have not wanted to register the true impact of a traumatic event on the child. Indeed, even when children are older, their parents' capacity to deny their children's suffering, be it physical or psychological, can be stunning.

The bedrock for this kind of denial of suffering, a kind of *reductio ad absurdum*, can be found in the belief, prevalent in the medical establishment over nearly a century, that neonates and very young infants lack the neurological capacity to experience pain and that they certainly lack the capacity for remembering it. Henry Bigelow of Boston, who published the first American article on the use of anesthesia in 1848, wrote that *anesthetics were unnecessary for infants* because they lacked the “remembrance of suffering.” This misconception was established medical dogma thereafter.

More than a century later, in 1987, Philip Boffey, a science editor at the *New York Times*, saw fit to write an article titled “Infants’ Sense of Pain is Recognized, Finally.” Trying to correct the still prevalent misconception, he quoted John W. Scanlon, Director of Neonatology at the Columbia Hospital for Women in Washington, as saying that the practice of conducting surgery either without anesthesia or with minimal anesthesia, a practice that was still commonplace, was “a barbarous and nasty business.” Although university hospitals at least had been using anesthesia with young children for quite some time, in many quarters of this country anesthesia was still not used—even for open heart surgery, and even with infants as old as a year and a half.

Indeed, not until a research report from Anand and Hickey, “Pain and Its Effects in the Human Neonate and Fetus,” was published in the *New England Journal of Medicine* in 1987 did this practice begin finally to end. Anand and Hickey reviewed extensive evidence suggesting that even in the human fetus “pain pathways as well as cortical and subcortical centers necessary for pain perception are well developed late in gestation, and that the neurochemical systems now known to be associated with pain transmission and modulation are intact and functional” (p. 1329). In a subsequent research study (Anand and Hickey 1992), they found that deep anesthesia, in comparison to light anesthesia, dramatically increased survival rate in infants undergoing surgery. Nearly one third of babies with light anesthesia died, whereas none of those receiving deep anesthesia did. Babies in the light anesthesia group had massive hormonal stress responses; those who died had the greatest hormonal stress responses of all (Anand, Hansen, and Hickey 1990).

In short, babies do feel pain, they react to it with high levels of stress, and they can die from it. Yet this knowledge, now indisputable, was a long time coming to the medical establishment.

EMOTIONAL CONCOMITANTS TO SOMATIC PAIN

In this context it is worth remembering, and celebrating, the signal contribution of the pediatrician and psychoanalyst David Levy (1939, 1945), the father of infant trauma research and treatment, who early noted the reality of suffering in infants and young children in the face of surgery and other invasive medical procedures. In that respect, Levy, one of the founding fathers of the Columbia Psychoanalytic Institute, was far ahead of the field. But he was equally far ahead of the field in another respect. In this country, his was a lone voice in the wilderness advocating for recognition of the traumatic impact of hospital policies that kept parents away from children. His pioneering research eventuated in policies encouraging parents to stay with their children during hospitalization.

It is now well documented that very young children show the same three basic categories of posttraumatic symptoms observed in adults: reexperiencing, numbing, and hyperarousal (Coates, Schechter, and First 2003; Scheeringa et al. 2003; Schechter and Tosyali 2001). These three clusters of symptoms are the means by which posttraumatic disorders in adults are diagnosed. These clusters have consistently been shown to represent independent factors in the traumatic response process, and there are now over fifty published case reports documenting their presence in children under the age of four (Scheeringa and Zeanah 1995). Together these studies make a strong *prima facie* case that the underlying biopsychosocial changes seen in young children are indeed comparable to those seen in older children and adults (Scheeringa and Zeanah 1995).

Naturally one would expect that the way these symptom clusters manifest themselves in young children will be shaped by their emotional and cognitive development. Both Terr (1988) and Gaensbauer (1995) report that children under the age of three, though unable to describe a trauma in words, enact it in play through motor behavior and somatic responses. Doing this requires a preverbal capacity to symbolically represent traumatic events in memory. Posttraumatic play in very young children is readily distinguishable from ordinary play: compulsively driven, it presents a repetitive reenactment of the trauma. In addition, very young children show symptoms of reexperiencing the trauma that are highly reminiscent of what is seen in older children and adults: repeated nightmares, distress at exposure to reminders of the trauma, and episodes with features of flashbacks or dissociation.

The same degree of similarity with adult trauma can be seen with the other two symptom clusters. A numbing of responsiveness in a child is revealed by increased social withdrawal, restricted range of affect, temporary loss of previously acquired developmental skills, and a decrease or constriction in play. Increased arousal is revealed by symptoms such as nightmares, difficulty going to sleep, repeated night waking, significant attentional difficulties, hypervigilance, and exaggerated startle response. In addition, new symptoms, notably phobic-like fears or aggression, that were not present before the traumatic event, are frequent sequelae of childhood trauma.

Trauma in very young children is obviously affected by their relationship with primary caretakers. So, too, is posttraumatic stress disorder. From the age of six or seven months forward, children take their cues as to what is dangerous and what is not from their parents. And let us recall that the primary purpose of the attachment relationship, viewed from an evolutionary perspective, is to protect the child against predation or other dangers. This impacts not only how the trauma is perceived but also how it is processed cognitively and emotionally.

Shared or “relational” PTSD has been proposed as a construct for thinking about trauma in very young children in a manner that takes into account various ways in which children take their emotional understanding of an event from their primary caretakers. In their discussion of relational PTSD, Scheeringa and Zeanah (2001) conceptualize several variants. In the “moderating effect” model, the child is traumatized directly by an event, but the mother’s relationship with the child, including her ability to read the child’s cues and respond effectively to the child’s needs, moderates the degree to which the child becomes symptomatic. The mother’s behavior can either upregulate or downregulate the child’s anxiety. In the “vicarious traumatization” model, by contrast, it is the mother who has experienced a trauma, not the child. Yet the impact of the trauma on the mother is such that it impinges on her relationship with her child, altering her responsiveness and instigating the child’s development of symptoms (Schechter et al. 2011). This is what is encountered in the now familiar phenomenon of intergenerational transfer of trauma.

In summary, then, there is evidence not only that very young children can experience and encode trauma when it occurs but also that they are capable of reexperiencing it after the event via affective and somatic representation (Schechter in press). What is different in children is not the

element of trauma per se, but the significant impact, for better or worse, that their caretakers can have upon them. How this plays out is a matter for clinical exploration, as well as for further research.

THREE CASES

Let us turn now to three cases in which trauma was experienced by age one year or younger and later recalled. In all three cases there was independent confirmation of the trauma's reality, an important criterion that dates back to Freud. In all three cases there was also clear indication that the trauma was represented and encoded in memory.

Audrey: Trauma at Twelve Months

Gaensbauer (1995, 2004) has reported on his patient Audrey, who was first seen at the age of four and a half. At twelve months, Audrey witnessed close-hand an explosion from a letter bomb that killed her mother instantly and fatally injured a friend. Audrey was found at the scene standing over her dead mother's body.

When Gaensbauer (2004) asked the four-and-a-half-year-old Audrey how her mother had died, she fell on the floor and writhed around, presumably imitating her mother before she died or imitating her mother's friend, who when help arrived was screaming and writhing in pain. In the same session she played out a nurturing interaction between a mother doll and a baby, but then, holding on to the baby doll, "very suddenly and forcefully brought her across the play scene, scattering the dolls and toy furniture in every direction" (p. 28). Following this, she had the baby doll stand next to the mother doll and say, "She dead."

Audrey was also observed to become quite distressed if dust-balls or flies landed on her or if she was exposed to a strong wind or the color red. These became triggers that apparently activated sensory experiences embedded in her experience of the explosion.

Betsy: Trauma at Ten Months

Some years ago, I worked with an extremely bright, inquisitive, and highly verbal four-year-old girl I will call Betsy. At the age of ten months, while in a neighborhood park with her nanny, Betsy was stabbed in the stomach by a deranged psychiatric patient delusionally fixated on murdering an infant. She survived only because the stabbing occurred close

to a major teaching hospital and Patka (the nanny) and the police and surgeons acted with great speed. When Betsy arrived at the hospital she had no heartbeat and nearly bled out because an artery had been severed. After eight hours of surgery, the medical team had miraculously managed to save her life.

Surprisingly, Betsy's parents did not recall her having any symptoms of PTSD when she returned home after her hospitalization. She slept and ate well and showed no fearful reactions to unfamiliar men, to being approached too quickly, to being in the park with Patka, or to knives. As she got older she was interested in the scars on her abdomen, which collectively she called her "line," and would look at them from time to time, but she did not seem to have any protective reactions to this area. She had no numbing responses or responses indicating hyperarousal that the parents were aware of.

When she was about three, however, Betsy was in the kitchen standing on a chair and leaning against the sink so that it pressed against her scar. "Daddy," she said, "my line hurts." Her father said, "You mean your special boo-boo?" using his word for the scar. Betsy said, "No, Daddy," and then took her hand and made a violent slashing gesture. "It was a very bad day," she said. Clearly she had a somatic memory of the trauma. I will return to Betsy later.

Laura: Trauma at Three Months

The earliest memory reported in the literature of a trauma later verbally recalled is from Laura, the daughter of a physician, who was diagnosed at birth with hydrocephalus and at three months had a pneumoencephalogram via the lumbar route that included X-rays and subdural taps, a painful procedure (Bernstein and Blacher 1967). At the time of her treatment the hospital was undergoing renovations, a project that produced constant loud hammer taps during her tests. After the pneumoencephalogram, Laura awoke screaming and inconsolable. She would scream also whenever a man other than her father approached her.

When she was twenty-eight months old, she heard hammering going on in the house next door. Laura seemed terrified and could not be calmed by explanations of the hammering. She began screaming upon waking up from naps. She complained, "My dolly is not sleeping all night." When asked why, she responded: "Man is knocking—might knock her head off." To the query, "What man?" she answered, "In the hospital the man knocked my head off" (p. 158). Her mother then recalled the hammering that had

taken place during the construction work when Laura was hospitalized. The next time Laura brought up the matter of the knocking, her mother asked, “What happened in the hospital?” Laura replied, pointing to her backside, “Man stuck me in the tushie and knocked my head off” (p. 158). She went on to explain that this meant the procedure had hurt her head.

Discussion of the Three Cases

Let us consider what the three cases have in common. They all involve traumas occurring in children a year old or younger. These were all single traumatic events externally verified. All three children were girls, which is of interest because there is evidence suggesting that girls are more likely than boys to remember early trauma (Terr 1988). Why this might be is not known. It may have something to do with the fact that girls are more verbally and developmentally precocious than boys. In each of these three instances of remembering, there was an external stimulus that activated a somatic memory of the trauma that was then expressed in a bodily enactment. Laura began screaming when she heard hammering and said that the man was knocking her dolly’s head off. Betsy enacted the slashing and stabbing of the knife to her stomach when the sink pressed against her scar. In response to a question, Audrey enacted the movement of her mother’s friend as she was flailing and screaming; she also became very upset if she saw red, if flies or dust-balls landed on her, or when she experienced wind—visual and tactile stimuli embedded in the traumatic scene. In short, all three children clearly had encoded and represented somatic, sensory memories of the trauma that they could reproduce motorically. Their verbal narratives were simple, reasonably accurate, devoid of contextual and peripheral details, and connected to their somatic experience.

COGNITION AND MEMORY IN YOUNG INFANTS

The scientific understanding of memory in early childhood has been advancing very rapidly. Over the past quarter-century a new discipline has emerged, developmental cognitive science, that studies early memory, including even memories from prenatal life. Consequently, the view of infants’ memory capacities has been steadily enlarging. Carey (2009) has persuasively argued that representational capacity is innate, and that there is evidence of episodic memory by two months and of intentionality by five months.

For many years it was believed that infants do not remember what has happened to them before the hippocampus matures at around eighteen months, approximately the time that language is first acquired. Thus, it was thought that infants cannot encode specific events. It was well understood that implicit, procedural, nonepisodic memory develops substantially earlier, long before the capacity to form an explicit episodic memory of a scene. Procedural memory is habit learning, or gradual, incremental learning, like learning to walk or play the violin. It is also involved in interactions with others, where it generates “representations of interactions generalized” (RIGs; Stern 1983) and the “implicit relational knowing” theorized by the Boston Change Process Study Group (Nahum et al. 2002). Procedural memory is essentially present from birth onward. But, it was thought, episodic memory is not available for events occurring before eighteen months.

On the face of things, remembering an event trauma would seem to require the capacity to form episodic memories. Explicit, episodic memory is quite different from procedural learning; the experimental standard for it is the one-trial, rapid learning of a scene. This is where the change in our general understanding of cognitive development comes in. It now appears that a kernel of episodic memory, or rather of the capacity to form episodic memories, may be available from the beginning of life and may develop simultaneously with procedural memory.

The particular form of episodic memory we call autobiographical memory is the last to develop and depends not only on verbal memory but on verbal interaction with parents about past events. What distinguishes autobiographical memory from episodic memory of a scene is that autobiographical memory requires that the memory of a scene be linked to a particular time and place (Nelson and Fivush 2004). Further, autobiographical memories usually have personal significance in that they become part of one’s representation of oneself and of one’s life history. There is now wide consensus that a stable autobiographical memory is not established until about age three and that its stability is vastly increased by parents’ provision of verbal scaffolding for their child’s experience, which helps the child contextualize his or her experience in time and place (Nelson and Fivush 2004). An example of this scaffolding might be when a toddler says “Fell down” and a mother elaborates the child’s remark by saying, “Yes, you fell down yesterday when you were playing with Johnny in the snow.”

The question is how we should conceptualize the formation of episodic memories at the earliest ages, well before autobiographical memory is established and at a time when most of the infant's learning is in the procedural mode. The answer involves the phenomenon of deferred imitation. Deferred imitation, considered the gold standard for demonstrating the acquisition of episodic memory, requires that a baby observe a novel behavior and then repeat it at a delayed interval. As a general phenomenon, deferred imitation was believed by Piaget to emerge around eighteen months. However, there now exist several studies demonstrating that six-month-olds are capable of deferred imitation after a twenty-four-hour delay. They can learn to manipulate an activity box in a unique way and repeat it a day later. Perris, Myers, and Clinton (1990) have even demonstrated that children exposed to an experiment at six months, one that involved locating a specific object in connection with a particular sound, showed evidence of having retained the information concerning it at follow-up two years later: they were able to learn the task they had been exposed to more rapidly than tasks they had not been exposed to. We can think of this as a kind of one-shot learning: the specific experience, being novel and then going unrepeatable, has clearly been encoded in some fashion. It is rather like not touching a hot stove twice; one touch is potentially enough, even without a mother's warning. Babies clearly have this capacity, and they have it by six months.

Babies have other remarkable cognitive capacities as well. Indeed, it is now known that even newborns have significant abilities. They can recognize their mother's voice. They can even recognize a Dr. Seuss story that had been read to them by their mother in the third trimester of pregnancy. Even more startlingly, they can recognize the specific Dr. Seuss book as against another (DeCasper and Fifer 1980).

In a different vein, it has been demonstrated in the work of Meltzoff (Meltzoff and Moore 1983) that neonates as young as forty-two minutes old are able to imitate facial expressions. They can also imitate hand gestures and head-turning motions. This is no small feat, as newborns have never seen their face or head in a mirror. As Meltzoff asks, how do they know to stick their tongue out when they see another human being doing the same? They can also, by the age of one month, correctly identify a visual object corresponding to an object they have in their mouth. If they feel a nubby pacifier in their mouth, they look at the nubby pacifier rather than the smooth one when pictures of both are presented to them side by

side on a movie screen. This finding led Meltzoff to conclude that the human neonate is born with an innate intermodal mapping capacity whereby perception and action are linked from the start, allowing the newborn's senses to "speak a common language," so to say.

Even more interestingly for my purposes here, Meltzoff and Moore (1977) conducted a study in which they had babies sucking on a pacifier look at faces with various expressions. Their sucking inhibited them from imitating the facial gestures they were viewing. When the pacifier was removed, an expressively passive face was presented. The infants often frowned at the passive face and then, after a pause of many seconds, began to imitate the face they had seen while sucking. Moreover, the infants improved on their responses after successive efforts even when they could not reaccess the original stimulus. Meltzoff is currently studying this effect with longer delays, but he concluded that even early infancy is not best characterized as the operation of an exclusively habit/procedural system: instead, he writes, "there is a kernel of some higher level memory system right from the earliest phases of human infancy" (Meltzoff 1990, p. 25). Rovee-Collier (1997) similarly writes that "both implicit and explicit memory must be viewed as primitive systems that are simultaneously functional very early in development" (p. 468; for a further discussion of memory and trauma, see Gaensbauer 2004).

From a clinical perspective, the question would seem to be whether there is any evidence of memory for painful or stressful events in the first days of life. If neonates have a "kernel" of episodic memory of neutral content even from the first days of life, we might expect that aversive stimuli would have even more of a chance of being remembered, and of serving as the basis for an emotional memory in LeDoux's terms (1996); that is, traumatic events would be expected to have greater emotional salience for very young infants than would neutral stimuli.

Taddio and her colleagues at the Hospital for Sick Children at the University of Toronto (Taddio et al. 1997) attempted to assess the effect of neonatal circumcision, which surprisingly is still routinely done without pain management, on infants' subsequent reactions to vaccinations at four and six months. Taddio found that infants who had been circumcised as neonates without pain medications cried more and had more contorted faces when receiving their vaccinations. Gaensbauer (2004) has reported the case of a young man who whenever he was stressed as an adult felt that his heels hurt. He had been completely unaware that he had had

repeated heel pricks when he was a neonate. So we do have some evidence that even the earliest trauma can be represented at the time of the trauma and can be reexperienced via painful affects, somatic experience, and behavioral enactments.

BETSY ELABORATED

In the case of Betsy, the child who was stabbed in the abdomen at the age of ten months, it is possible to observe the further development and transformation of a traumatic memory. The reader will recall that at the age of three Betsy clearly gave indication that she retained a somatic memory of the assault, complaining to her father in the kitchen that the “line” on her belly hurt, and then making a violent slashing gesture, saying, “It was a very bad day.”

Betsy received deep anesthesia for her surgery, so the surgery itself was neither painful nor remembered, and thus was not retraumatizing. Betsy’s parents were unusually devoted and thoughtful parents who did everything they could think of to prevent her from being retraumatized. One or the other parent was with her throughout her entire hospital stay. They were with her during difficult procedures like putting in IV lines. They comforted her, were attuned to her emotional states, and supported her defenses. They gave her a simple narrative of her traumatic experience by referring to her scars as her special boo-boo. This may have helped her repress her traumatic reaction. From the perspective of David Levy, they had prevented the trauma of being separated from her parents while she was in the hospital. From the perspective of Scheeringa and Zeanah (2001), the parents moderated her reaction by helping her contain anxiety and by being ever present to comfort her. This may have figured in Betsy’s rapid recovery. The doctors had thought she would be in the hospital for three months, but after three weeks she was able to return home. Betsy had many follow-up visits with doctors after her surgery, but she seemed to enjoy these, at least in part because the doctors and nurses were so happy to see her.

Now, as Betsy reached the age of four and a half, her parents sought professional help. Their daughter would begin kindergarten in a few months, and they wanted to figure out how to talk to her about what had happened to her when she was ten months old. They were aware that most of the parents in the school knew about Betsy’s stabbing, as did some of

the children. They did not want her to learn the story of the attack from another child. Moreover, the father realized that she was being exposed to computers while on play dates and that the first time she would type her name into Google the story of her assault would come up on hundreds of websites. Her parents asked that she be given short-term therapy to help her integrate the story of her attack.

It is noteworthy that Betsy's parents had been told by both pediatricians and psychiatrists that there was no way their daughter could remember what had happened to her and had counseled them never to talk about it. A problem with this advice is that it made the father feel they were never going to get effective help; it was clear to him, given Betsy's reaction at the sink at age three, that "the professionals didn't know what they were talking about" regarding children's capacity to remember trauma. The parents wanted help from a clinician who recognized that indeed their daughter had some memory of the trauma. With kindergarten looming, they sought me out to help them find a way to talk to Betsy about the attack in a manner that would not retraumatize her; in addition, they wanted to help her find a way for this to become part of her life story, but only a part, and not the story of who she was.

When I met Betsy at four and a half, she was an adorable, engaging, bright little girl, verbally precocious and emotionally well-related. She was the kind of radiant little girl who the minute she walked in the door one knew that this was a well-loved child. She had a very engaged and loving relationship with each parent, as well as with her nanny, and seemed securely attached to them. She could easily go to her parents for help and had access to a wide range of feelings. In preschool she had many friends, was very curious, enjoyed play activities, and was collaborative with peers.

I saw Betsy for several sessions before we talked about what had happened to her. In each of these early sessions, she with great intensity built a hospital and created a loving atmosphere where everybody took care of everyone else. The children who came to the hospital had hurt an arm or a leg, and the doctors would fix them up; they had a good time playing with the other children, and with the doctors and nurses as well. I was puzzled that the hospital game was so repetitive, and seemed driven like the play of traumatized children, and yet there was no sense of dread in her stories. The negative affect associated with the trauma seemed to be repressed. The playfulness of her fantasies was probably a defense against the horror of what had happened.

The context is important here. Betsy's parents always referred to her scar as her "special boo-boo," referring to it in a very positive way. They also had positive feelings about the hospital and about Betsy's surgeon, who had literally saved their daughter's life. She had had many subsequent visits with the surgeon, who adored her. Indeed, he kept a picture of her on his desk, and one could well imagine that he might view Betsy's surgery as a crowning achievement of his professional life. So Betsy's ongoing experience with the hospital had been a positive one. But given how enormously curious this little girl was, I was puzzled that she had not asked her parents more questions about her scar. Both parents, needless to say, had themselves been highly traumatized by this experience, and I began to suspect what I had seen in many trauma cases: namely, that Betsy was aware of their traumatic reaction and was trying to protect them by not bringing up a subject that caused them great pain.

Eventually I made a start at trying to sort this all out by asking Betsy at the end of one of the sessions if she would like to show Daddy the hospital she had built. With intense affect she said, "Oh, no!" At our next session, while her nanny was in the waiting room, I asked her if she would like to show Patka the hospital she had built. She eagerly said yes. This strengthened my hypothesis that she was trying to protect her parents.

After about eight sessions, after we had established a positive working alliance, and after I was convinced that Betsy was psychologically sturdy enough to deal with an explanation of her scar, I decided it was time to tell her the story. I told her that I thought her parents believed she was getting to be a big enough girl to learn the story of how she got her line. She said, "You mean my scar?" I said, "Yes." I asked her if she wanted to know about the story of her scar, and she said "Yes!" with great enthusiasm. I asked her if she would like to wait until next week (at her usual time) or would like to make a special appointment to hear the story tomorrow. With great eagerness she said, "Tomorrow!" In the meantime, I had spent many sessions working with her parents to find a simple way of telling her the story, one that would minimize the possibility of re-traumatization. Here's what we decided to tell her: "When you were very, very little, you were in a stroller with Patka, on your way home from the park, and a man, whose brain was injured and did not know what he was doing, hurt you with a knife."

The parents decided that the father would tell her the story. The next day, when Betsy came into my office escorted by her parents, I asked her if she wanted to hear the story now. Saying no, she went to the drawing table and cut up some white paper with scissors. This may have been her way of turning passive into active. After a short time, I asked her if she was ready to hear her story now. She said “Okay” and got up in her father’s lap as we sat together in a circle to tell the story. Her father told her the story exactly as we had planned. Then, on his own, he added: “It was very scary for everybody, for Betsy, for Mommy, for Daddy, and for Patka and your sister Janet. Everybody helped you. Patka ran to the hospital and the police helped carry you there too. Your sister heard about it and called to tell Mommy what happened. And Mom and Dad got there as fast we could. And Dr. L. was there and he helped you and other doctors, too. And you got better very fast. And even though it was scary you were very strong and everybody helped you and you got all the way better faster than anyone thought possible. They thought you were going to be in the hospital for three months but you were all better in three weeks, and when we brought your new stroller to the hospital you were so happy and smiling and kicking your feet.”

Betsy sat sucking her thumb while her father told her the story. When he stopped speaking, she began asking questions.

BETSY: Why did he do it?

FATHER: Because his brain was injured and he didn’t know what he was doing.

BETSY: What does injury mean?

FATHER: His brain was sick and wasn’t working right.

BETSY: You mean like a boo-boo?

FATHER: Yes.

BETSY: What kind of a knife was it?

FATHER: I don’t know.

BETSY: Where is he now?

FATHER: He is in jail.

BETSY: How long will he be there?

FATHER: For the rest of his life.

BETSY: How far away is it? Is it all the way to Africa?

FATHER: It’s very far away but not in Africa.

BETSY: Will he come out?

FATHER: No.

BETSY: What is his name?

FATHER: Peter.

BETSY: Did it hurt?

FATHER: Yes.

BETSY: Was it like a shot?

FATHER: Yes. Like many many shots. (pause) Do you know that Patka ran so fast that she lost her shoes?

BETSY: Did I find them?

FATHER: No, but the neighbors did.

Betsy's mom then took her to the bathroom, where she continued to ask questions.

BETSY: How does he stay in jail?

MOTHER: There are bars and locks.

BETSY: How does he get kept there?

MOTHER: There are policemen and guards that watch him.

BETSY: Are there other bad people there?

MOTHER: Yes.

BETSY: Is it dark in there?

MOTHER: Sometimes.

BETSY: Do people come out of jail?

MOTHER: No, not usually, and the bad man that hurt you isn't coming out.

At a later point in the session Betsy asked what Dr. L. did to her. Her father told her that the doctor had extended the incision made by the perpetrator to make her better. Her father then showed her in the mirror the part of the scar made by the perpetrator and then the part made by Dr. L. Betsy looked on with great interest.

That night she was still unsettled after reading several books before going to bed. Her father asked her if she would like to ask him anything else about the story they told her today. "Please tell me the whole story again," she said. He did, and here is what ensued:

BETSY: What happened to Patka's shoes?

FATHER: She ran so fast they couldn't keep up. Some police also helped Patka and took you and ran with you to the hospital.

BETSY: Was I crying in the police's arms?

FATHER: Probably. It was scary and it hurt. Do you want to meet the police lady who helped you?

BETSY: Yes, I do. Did the police get the bad guy?

FATHER: Yes. Everybody in the neighborhood was very angry and they helped the police get the bad guy right away.

Betsy asked many more questions and then went to sleep. She talked to her grandparents and to Patka about the story over the weekend.

At her next session I said to her, "We had a pretty important talk the last time I saw you." She said, "I told Patka all about it. Let's build a hospital. Can you help me?" Then, going over to the toy stroller and putting a baby doll in it, she said, "This is me." Picking out an adult doll, she said, "This is Patka." Next she picked out a male doll and said, "This is the bad guy." Then she had the bad guy hit the baby doll with his hand, and she said, "He poked me in the stomach." After that she played out the following scene: The nanny doll picks up the baby doll and starts running to the hospital. She hands the baby over to the policeman, who runs to the hospital and into the operating room, where he hands the baby to the doctors.

Betsy then asked, "Do you have the thing they cut me open with?" I said, "No, but you could pretend it is one of these things," handing her a tiny pair of toy plastic tweezers about half an inch long. Betsy then placed her mother, her father, her sister, and Patka around the operating table. Next she took the tweezers and swept them across the baby's abdomen. "We are all done," she said. Then the whole family, including Patka, went to another room, where she was in a crib: "They all stay with me the whole time I am in the hospital."

Betsy then commented on the scene: "This happened when I was a tiny baby, and I think Janet [who in reality was ten at the time] was a baby, too, and she was in the crib with me. I wanted a TV in my room." She took the toy TV and put it next to her bed. Then she took the sister doll out of her bed and gave her a bed of her own. From here she elaborated further: "What if we make this a baby hospital? Let's make a school next to the hospital. And this could be its swimming pool." At this point Betsy went back to the hospital and said, "I wasn't going to stay there for three weeks. They all march out together and then go home." The story is now beginning to tumble through her fantasy, and we see the very beginning of "après-coup." Before the session ended, she announced, "I think I am going to make a jail." I told her, "It's time to stop, but you can make a jail at home tonight and make another one the next time I see you."

In the next session she said to me, "Did you know that the knife was really sharp?" I replied, "Yes it was." She then began playing hospital again, but only briefly this time, after which she became interested in exploring other things in the room. Some months later, while sitting in a

doughnut shop with her father, she asked him to tell her the whole story again. Upon hearing it, she said, "I'm glad he didn't kill me." Her father replied, "We were all glad he didn't kill you." She then spent some time telling him that "bad guys do sometimes kill people and then they are dead."

It is not surprising that one of Betsy's greatest concerns after learning the story was whether the bad guy was safely away from her in jail. Safety seemed to be her biggest initial concern. Over the weekend after hearing the story for the first time, she played out themes of the bad man being in jail, and she wanted to play this out again in my office the following week. Apart from her concerns in the first days after she heard the story, her parents both experienced her as being relieved. I too was struck with how relieved she seemed to be once she knew the story and could talk about it.

Why was she relieved? Placing a trauma into a cohesive narrative is therapeutic in itself (Coates and Gaensbauer 2009), and this seemed the case with Betsy. She now had a narrative that could be integrated with her previously inchoate bodily experience of a "very bad day." Now her experience could be intersubjectively processed and constructed with her family and her therapist. It is critically important to have the child's parents involved, whenever possible, in constructing and co-constructing the trauma narrative, so that the child can continue to process the traumatic experience in the family setting for as long as needed (Coates and Gaensbauer 2009). Indeed, Betsy immediately wanted to process her experience of learning her story with her entire family. In the weeks ahead, her school also played a supportive role in allowing her to talk to a teacher any time she needed to talk about her story. Thus, her extended community, as well as her family, was involved in co-constructing and containing her story.

It is also notable how relatively quickly she began subjecting the story to fantasy elaboration. Her story began to be tumbled through fantasy (e.g., her inclusion of the entire family in the operating room and of her sister, imagined as an infant, in bed with her in the hospital). For about the next eight weeks she built hospitals for briefer and briefer portions of the sessions, as she progressively lost interest in the hospital. In the final session she did not play hospital at all. It is as if that once she knew it was okay to ask questions about the assault, the floodgates were open. Though initially she barraged her parents with questions until satisfied that she had "got it," once she worked on it for a number of weeks

the driven play I had witnessed when I first began seeing her, and in the few sessions after she learned the story of her trauma, stopped entirely. Able now to move on, she began to play in a carefree way like any little girl her age.

In a follow-up conversation with her father many years later, when Betsy was nine, I learned that she had been invited to a Halloween party and was taken to a haunted house. She entered a dark room and when the light was switched on she saw a man with a dagger in his hands. She immediately had a severe panic attack. So although she showed no signs of PTSD right after her attack, this highly specific image activated a flashback to which she had a severe affective response.

What can be said regarding Betsy's fantasies about her "line" before she heard the story of her trauma? Unfortunately, very little. It seems clear in retrospect that she had correctly read whatever cues she was given to deduce that whatever was behind her "line" was frightening to her parents—and thus potentially frightening for her. Her cheeriness, playfulness, and the absence of negative affect were surely defensive, designed to mimic the attitudes of those who loved and cared for her, and to protect them and herself from the horror of what had happened to her. This was a closet that she did not dare enter. It is impossible to deduce what she might have imagined was in that closet.

Three issues make this case particularly interesting. First, of course, is that there was a clear somatic memory of the trauma, even though it happened at the age of ten months. This somatic memory, moreover, had become spontaneously coupled with the ominous verbal formula "It was a very bad day." This gives evidence—at ten months—of the kind of "kernel" of episodic memory formation that Meltzoff (1995) has postulated. Second, the child's access to outside knowledge of what had happened and to conversations about it remained restricted until the session in my office when she was four and a half. Given our current understanding of how autobiographical memory ordinarily develops (i.e., as dependent not only on verbal capacity but also on the parents' scaffolding), Betsy's autobiographical memory of the event could be elaborated after the event was described to her. In this context, it is interesting to see how Betsy immediately wove into her new narrative of the attack the positive feelings she had about the hospital and how, as she began to create her own newly constructed autobiographical memory, she used both fantasy and elements of reality.

The third aspect that makes this case unusual is that a single, very severe trauma occurred in the context of what appears to have been a manifestly secure attachment relationship that was ongoing. Ordinarily, and sadly, when a child has suffered a severe event trauma inflicted by a human being, it is not the only such event in the child's life; all too often, the presence of additional traumas, both to the child and to family members, makes it difficult to parcel out the impact of any individual event. In Betsy's case, by contrast, the single event stands out, not only for its truly traumatic nature, but also because it was an isolated event, occurring in an otherwise secure attachment situation.

Just this circumstance allows one to draw an important conclusion from Betsy's experience. From this case we can see what can happen when parents have excellent capacities to protect the child and contain the trauma, even, as here, one that involved a murderous assault that nearly killed the child and severely traumatized her parents as well. Simply put, in Betsy's case, her secure attachment to her parents trumped the trauma. Her secure attachment and ongoing parental support, as well as her own resourcefulness, were the source of her resilience. Remarkably, Betsy has as a result been able to integrate an unimaginably severe trauma into her sense of self and get on with her life. No doubt she will revisit this trauma at developmental stages to come, and it will need to be reworked each time.

DISCUSSION

I became interested in the persisting effects of early trauma some years ago when a patient, whom I had first seen when he was three years old for problems with aggression and with his peers, returned for a visit when he was twenty-two. He had an interesting symptom to report.

As a two-year-old, this boy had been terrorized by his mother, who, when she went into rages, would put her hands around his neck and shake him hard. This throttling continued off and on until she began to recognize the terror in his eyes and began trying to control herself. She reported all this early in the boy's initial treatment.

The boy was eight years old at the end of his treatment. His original symptoms involving aggression against his peers and parents had markedly improved. At the time of termination, I asked him questions about a range of different feelings he had. Included was the question, "Do you have any weird feelings?" "Weird" was a word he had used spontaneously

on a number of occasions when he was age four to describe unsettling feelings. Now he surprised me by asking what “weird feelings” were. I replied, “Feelings that are hard to understand.” With great emphasis he said, “Oh yes. When my guinea pigs fight my neck gets hot and cold and Mommy and Daddy say I turn white.” At the time, I connected this in my mind to the terror he had undoubtedly experienced during his mother’s rages when she would grab him by the neck (Coates and Moore 1997).

As I have said, this boy returned to see me as a young man of twenty-two, having broken off a relationship with his partner of several years. The reader can imagine my surprise when in the course of the interview he made the following request: “I am wondering if you could help me understand an experience I regularly have when watching movies. Whenever there is about to be a violent scene my neck becomes very weak and I have to put my hands around my neck to hold it up.” He demonstrated by grabbing his neck, his hands assuming the identical position his mother had shown me when she described what she had done to him. I was stunned by the specificity of the gesture. It appeared that his body had “kept the score,” just as van der Kolk describes (2014); after all these years the trauma was still stored in somatic memory, as was the case with Betsy. This incident piqued my curiosity about how a child can retain, decades later, memories of trauma suffered so early in life.

Several things might be noted about the trauma of this young boy. The trauma was not a single event. It occurred more than once, stopping only when the mother became concerned about the depth of her anger. Then, too, these scenes took place at the age of two and thereafter, at a time when the child was already developing language. Moreover, since he suffered the trauma literally at the hands of his mother, it occasioned a severe derailment of the attachment system. And, finally, quite apart from the somatic memory, the memory of this scene was retained affectively and pictorially as well—in a fear of women with “angry eyes.” This visual representation, moreover, reappeared in his play in the course of therapy, first in various repetitive concerns (drawing pictures of women with angry eyes) and then in later symbolic elaborations, as the boy appeared to work through the trauma and reestablish a safer connection to his mother. And yet, beneath the seemingly familiar world of “angry eyes,” we are presented with the odd survival of a body memory (the attack at the neck) that continues its own existence, its own thematic and symbolic resonance with ongoing life experiences, and its own concomitant feeling

of fright and perplexity. This is the kind of thing that once might have been approached as possibly connected to a fantasy and that is now quickly labeled “dissociative.” But it is not dissociated at all; nor is it wishful in any sense. It is enacted as a somatic symptom.

I have tried to clarify some issues pertaining to trauma at very early ages by establishing four interconnected points. First, it is now indisputable that very young infants, including neonates and even perhaps fetuses, experience pain. It scarcely seems necessary to state this, yet for well over a century both parents and physicians were of the opposite, incorrect, opinion; moreover, even today, it is not always the case that anesthesia is properly used in painful medical procedures, such as circumcision, on young children.

Second, not only do infants experience pain—and severe stress—but they are capable of forming symbolic representations and somatic memories of traumas they have suffered. In addition, we now know that their capacities for other kinds of memory are far more sophisticated than was thought even thirty years ago, and that these capacities include the rudiments of an episodic memory system even before the onset of language.

Third, these two factors—the experience of pain and its memory—create necessary and sufficient conditions for traumatization and the development of PTSD. The existence of this disorder in very young children, younger than the age of four, has now been extensively documented. Clinically, the traumatized child ordinarily lacks the capacity to put the trauma into words before the age of three; however, the child will give evidence of traumatic reexperiencing in play, such play being easily distinguished from ordinary symbolic play. The child’s integration of the trauma into autobiographical memory, if it occurs, ordinarily begins at the age of three or a bit thereafter and requires both verbal development and parental scaffolding.

Fourth, the impact of the traumatic event upon the child will be mediated in all cases by the ongoing attachment system. When the trauma occurs as part of the attachment relationship, a topic I have mentioned only briefly here, the situation is expectably graver. When the trauma occurs to both child and parent, its impact is compounded. Even when the trauma occurs only to the child and occurs in the context of an ongoing secure attachment system, it is still possible for traumatization, and the development of PTSD, to occur. Finally, as evidenced by the case of Betsy, it is possible for a severe trauma to occur and yet not lead to severe traumatization, or to contaminate the development of autobiographical

memory by skewing it in the direction of the trauma as the single, salient, and determining feature of the young person's life. This is rare, and it reflects an unusually secure and adaptable attachment relationship, but it can occur, as with Betsy. There are indeed times when, surprisingly, attachment trumps trauma.

REFERENCES

- ANAND, K.J., HANSEN, D.D., & HICKEY, P.R. (1990). Hormonal-metabolic stress responses in neonates undergoing cardiac surgery. *Anesthesiology* 73:661–670.
- ANAND, K.J., & HICKEY, P.R. (1987). Pain and its effects in the human neonate and fetus. *New England Journal of Medicine* 317:1321–1329.
- ANAND, K.J., & HICKEY, P.R. (1992). Halothane-morphine compared with high dose sufentanil for anesthesia and postoperative analgesia in neonatal cardiac surgery. *New England Journal of Medicine* 326:1–9.
- BERNSTEIN, A.E.H., & BLACHER, R.S. (1967). The recovery of a memory from three months of age. *Psychoanalytic Study of the Child* 22:156–167.
- BOFFEY, P.M. (1987). Infants' sense of pain is recognized, finally. *New York Times*, November 27.
- CAREY, S. (2009). *The Origin of Concepts*. Oxford: Oxford University Press.
- COATES, S.W., & GAENSBAUER, T. (2009). Event trauma in early childhood: Symptoms, assessment, intervention. *Child & Adolescent Psychiatric Clinics of North America: Infant & Early Childhood Mental Health* 18:611–626.
- COATES, S.W., & MOORE, M.S. (1997). The complexity of early trauma: Representation and transformation. *Psychoanalytic Inquiry* 17:286–311.
- COATES, S.W., SCHECHTER, D.S., & FIRST, E. (2003). Brief interventions with traumatized children and families after September 11. In *September 11: Trauma and Human Bonds*, ed. S.W. Coates, J. Rosenthal, & D.S. Schechter. Hillsdale, NJ: Analytic Press, pp. 23–49.
- DECASPER, A.J., & FIFER, W.P. (1980). On human bonding: Newborns prefer their mothers' voices. *Science* 208:1174–1176.
- ERREICH, A. (2003). A modest proposal: (Re)defining unconscious fantasy. *Psychoanalytic Quarterly* 72:541–574.
- ERREICH, A. (2015). Unconscious fantasy as a special class of mental representation: A contribution to a model of mind. *Journal of the American Psychoanalytic Association* 63:247–270.
- FERENCZI, S. (1932). Confusion of the tongues between the adults and the child: The language of tenderness and of passion, transl. M. Balint. *International Journal of Psychoanalysis* 30:225–230, 1949.

- FREUD, S. (1926). Inhibitions, symptoms and anxiety. *Standard Edition* 20:87–174.
- GAENSBAUER, T. (1995). Trauma in the preverbal period: Symptoms, memories, and development. *Psychoanalytic Study of the Child* 50:122–149.
- GAENSBAUER, T. (2004). Telling their stories: Representations and reenactment of traumatic experiences occurring the first year of life. *Zero to Three* 25:25–31.
- KHAN, M.M.R. (1963). The concept of cumulative trauma. *Psychoanalytic Study of the Child* 18:286–316.
- LEDoux, J.E. (1996). *The Emotional Brain*. New York: Simon & Schuster.
- LEVY, D.M. (1939). Release therapy. *American Journal of Orthopsychiatry* 9:713–736.
- LEVY, D.M. (1945). Psychic trauma of operations in children and a note on combat neurosis. *American Journal of Diseases of Children* 69:7–25.
- MELTZOFF, A.N. (1990). Towards a developmental cognitive science: The implications of cross-modal matching and imitation for the development of representation and memory in infancy. *Annals of the New York Academy of Sciences* 608:1–31.
- MELTZOFF, A.N. (1995). What infant memory tells us about infantile amnesia: Long-term recall and deferred imitation. *Journal of Experimental Child Psychology* 59:497–515.
- MELTZOFF, A.N., & MOORE, M.K. (1977). Imitation of facial and manual gestures by human neonates. *Science* 198:75–78.
- MELTZOFF, A.N., & MOORE, M.K. (1983). Newborn infants imitate adult facial gestures. *Child Development* 54:702–709.
- NAHUM, J.P., BRUSCHWEILER-STERN, N., HARRISON, A.M., LYONS-RUTH, K., MORGAN, A.C., SANDER, L.W., STERN, D.N., & TRONICK, E.Z. (2002). Explicating the implicit: The local level and the microprocess of change in the analytic situation. *International Journal of Psychoanalysis* 83:1051–1062.
- NELSON, K., & FIVUSH, R. (2004). The emergence of autobiographical memory: A social cultural developmental theory. *Psychological Review* 3:486–511.
- PERRIS, E.E., MYERS, N.A., & CLIFTON, R.K. (1990). Long-term memory for a single infancy experience. *Child Development* 61:1769–1807.
- RODKEY, E.N., & PILLAI RIDDELL, R. (2013). The infancy of infant pain research: The experimental origins of infant pain denial. *Journal of Pain* 14:338–350.
- ROVEE-COLLIER, C. (1997). Dissociations in infant memory: Rethinking the development of implicit and explicit memory. *Psychological Review* 104:467–498.
- SCHECHTER, D.S. (in press). On traumatically skewed intersubjectivity. *Psychoanalytic Inquiry*.

- SCHECHTER, D.S., & TOSYALI, M.C. (2001). Posttraumatic stress disorder from infancy to adolescence: A review. In *Anxiety Disorders in Children and Adolescents: Epidemiology, Risk Factors, and Treatment*, ed. C.H. Essau & E. Petermann. New York: Brunner-Routledge, pp. 285–322.
- SCHECHTER, D.S., WILHEIM, E., McCAW, J., TURNER, J.B., MEYERS, M.M., & ZEANA, C.H. (2011). The relationship of violent fathers, posttraumatically stressed mothers, and symptomatic children in a preschool-age inner-city pediatrics sample. *Journal of Interpersonal Violence* 26:3699–3719.
- SCHEERINGA, M.S., & ZEANA, C.H. (1995). Symptom expression and trauma variables in children under 48 months of age. *Infant Mental Health Journal* 16:259–270.
- SCHEERINGA, M.S., & ZEANA, C.H. (2001). A relational perspective on PTSD in early childhood. *Journal of Traumatic Stress* 14:799–815.
- SCHEERINGA, M.S., ZEANA, C.H., MYERS, L., & PUTNAM, F.W. (2003). New findings on alternative criteria for PTSD in preschool children. *Journal of the American Academy of Child & Adolescent Psychiatry* 42:561–570.
- SCHIMEK, J.G. (1987). Fact and fantasy in the seduction theory: A historical review. *Journal of the American Psychoanalytic Association* 35:935–964.
- STERN, D.N. (1983). The early development of schemas of self, other, and ‘self with other’. In *Reflections on Self Psychology*, ed. J. Lichtenberg & S. Kaplan. Hillsdale, NJ: Analytic Press, pp. 49–84.
- TADDIO, A., KATZ, J., ILLERISCH, A.L., & KOREN, F. (1997). Effect of neonatal circumcision on pain response during subsequent routine vaccination. *Lancet* 349:599–603.
- TERR, L. (1988). What happens to early memories of trauma? A study of twenty children under age five at the time of documented traumatic events. *Journal of the American Academy of Child & Adolescent Psychiatry* 27:96–104.
- VAN DER KOLK, B. (2014). *The Body Keeps the Score*. New York: Viking Press.

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