

# Attachment research and the origins of violence: a story of damaged brains and damaged minds

---

Felicity de Zulueta

'The relevance lies not in the weapon they carry; it is in the mind that holds the weapon.' (anonymous)

**T**here is little doubt that we belong to a species that has made the most amazing technological advances over the last few centuries: we can fly to the moon, we can communicate instantly across the globe, we can map our genome, and advances in medicine and sanitation mean that many of us live longer and healthier lives than our ancestors. And yet, despite such extraordinary skills and scientific advances, when it comes to understanding human behaviour, and especially violent behaviour, we seem to be groping in the dark.

The UK government is currently faced with a spate of knife violence and killings in London and other cities, which are being highly publicised by the media. We are told that knife crime has existed for hundreds of years, but that it has now reached a critical mass and, as a result of the media coverage, it is in our face on a daily basis and, more important, in the face of the young people who feel threatened by it. The government wants to be seen to be doing something to make us feel safer and has produced a £100 million *Youth crime action plan* (YCAP) (HM Government, 2008). But, even before the plan was published, researchers in the field of child violence were providing evidence that contradicted the core assumptions of government policy.

What is perhaps most extraordinary to someone like myself, brought up among the so-called primitive tribes of Dayaks and hunter gatherers of Borneo, is that, in this so-called civilised culture, we can countenance the sight of a 10-year-old coldly stabbing another child without realising that this is totally abnormal behaviour. How can it be that children in our communities live in such terror that they feel they have to carry a knife to protect themselves? They tell us that their fear is such that the furthest thing on their minds is being stopped by the police. How can a young man kill another simply because he feels 'disrespected'? Why aren't we asking ourselves the obvious questions: What is wrong with these kids? What is going on in their minds? As one

wise young person is quoted as saying: 'The relevance lies not in the weapon they carry; it is in the mind that holds the weapon'.

But do we want to understand what is going on in their minds when the standard response is to label these individuals 'evil' and to punish them by 'locking them up'. We want them out of sight. In effect, we want them out of our minds. And to help us achieve this aim, politicians, the police and the press clamour for still more prisons, and the 'moral perspective' ends up overriding any thoughtful enquiry and any preventive action based on scientific research. Indeed, Western scientists have been providing us with information about how the human brain develops and functions for almost a quarter of a century. One would assume that understanding why we behave the way we do would be of great interest to parents, teachers and those who govern us. However, we have been ignoring their findings, both in terms of how we bring up children and in terms of government policy. Why?

The reasons for the failure of our society to absorb and to integrate this particular body of scientific evidence is almost as interesting as the neurobiological findings we now have relating to the origins of the high levels of violence to self and other that we face in the UK. Both are the subjects of this chapter.

### Violence begets violence

What is the social context into which British children are born today? Most commentators now state that youth crime is fairly static, but violent crime is increasing, indeed some figures are stark: 25% of homicide victims are young men, usually victims of other young men; murder rates due to stabbing for the under-16s has risen by 25% (Smith and Allen, 2004; Roe and Ashe, 2008).

According to NHS figures, an average of 58 youngsters a day in England are being admitted to hospital after being deliberately injured, a rise from 16,600 in 2003 to 21,859 in 2007 (Revill, 2008). These figures do not include young people taken to casualty and sent home, nor those who die as a result of the harm. Much of this abuse is not investigated. Infants aged under one are more at risk of being killed at the hands of another person than any age group of child under 18 in England and Wales (Coleman et al, 2007).

According to a UNICEF (2003) report on child maltreatment and deaths, at least two children under the age of 15 die of abuse or neglect every week in the UK. The report also finds that poverty and stress, along with drug and alcohol abuse, appear to be the factors most closely associated with child abuse and neglect. Eighty per cent of the abusers are the children's biological parents and most of the children injured are babies and toddlers who are particularly vulnerable to violence from their parents or carers. It is important to note that the human male is more vulnerable than his female counterpart, both physically and emotionally.

In the same homes, adults are also at risk: two women die every week in the UK as a result of violence by their partner or former partner, and in one study 21% of women attending their general practitioner in East London reported having been raped (Coid et al, 2003). An Islington study revealed that one in three women had been 'punched, slapped, kicked, head-butted, suffered an attempt at strangulation or was struck by a weapon' (McCarney, 1996, p 1). Two out of three men in the same study said that they would use violence against their partners in a 'conflict situation' such as 'not having dinner on time'. The effects on children of witnessing parental abuse are very damaging for children, as we will see later. Sexual abuse is also of growing concern and usually involves more than one type of abuse, particularly emotional neglect. Child sexual abuse involving contact is estimated at 16% for girls and 7% for boys and is usually carried out by close relatives (Cawson et al, 2000).

So the world our children are born into is one with very high levels of domestic violence compared to other wealthy European countries and the impact on children is very high. For example, according to figures in a report by the Camelot Foundation and the Mental Health Foundation (2006), there has been a rise in admissions for self-harming behaviour from 11,891 in 2002-03 to 15,955 in 2006-07, with three times as many admissions for girls as for boys aged 10 to 18 years; among 10-year-olds admitted for self-harm, boys outnumbered girls. The forms of self-harm recorded by hospitals are drugs overdose, attempted hanging and deliberate injury with a sharp object. Self-harming behaviour is often self-directed violence and it can be, as will be shown later, an attempt to relieve severe distress. Finally, current evidence in the UK shows that inequalities in health are widening as a result of current economic policies ([www.dh.gov.uk/en/PublicHealth/Healthinequalities/index.htm](http://www.dh.gov.uk/en/PublicHealth/Healthinequalities/index.htm)).

This is important because of the repeated finding that inequality as such is bad for the health of the nation whatever the absolute material standards. Rising suicide rates, increased levels of crime, drug misuse and violence, particularly homicide in young men, are the likely result (Watt, 1996).

Unfortunately, despite Tony Blair's stated aim in 1998 to end child poverty forever, a report by the London Child Poverty Commission (2008) states that almost a third of children in Britain and more than two out of five in London and half in inner London are still living below the official poverty line. These children are more likely to fail at school, end up without a job and get caught up in anti-social behaviour (ASB) and crime.

As if these figures were not enough to convince us of the need to take the causes of violence seriously, we now have some important evidence showing how violence impacts on the health of a nation. Feletti and his colleagues carried out a large series of prospective studies in the US looking at the relationship between adverse childhood experiences and adult health, well-being, social function and healthcare (Feletti and Anda, 2008). In these studies, adverse childhood experiences were found to be the following:

<b>Abuse:</b>	Emotional abuse
	Physical abuse
	Sexual abuse
<b>Neglect:</b>	Physical or emotional
<b>Household dysfunction:</b>	Mother treated violently
	Household use of drugs or alcohol
	Presence of mental illness
	Parental separation or divorce
	Incarcerated household member

The authors found that the more adverse childhood experiences an individual has endured, the more they are likely to suffer from severe obesity, ischaemic heart disease, stroke, chest diseases, diabetes, hepatitis, sexually transmitted diseases and depression. They are also more likely to smoke, abuse alcohol and drugs and attempt suicide. Similarly, the more adverse childhood experiences an individual has endured, the greater the risk of:

- being sexually assaulted as an adult (especially if a woman);
- being a victim of domestic violence (more so for women than men); and
- perpetrating domestic violence (for both men and women).

These figures speak for themselves, and studies on adverse childhood experiences should be on the reading list of every politician, assuming they have one. We can conclude that the less we protect our young from being neglected and abused, both physically and emotionally, the more they damage their lives through ill-health and the more they damage others through violent behaviour.

Feletti and Anda report that their team developed their research on adverse childhood events after finding that, in their weight-reducing programme, the high drop-out rate was limited exclusively to patients who were *successfully losing weight*. They wondered why. As a result of their studies, summarised in the report mentioned above, they recognised that certain of the most intractable public health problems like obesity were unconscious, or occasionally conscious, solutions dating back to the earliest years, but hidden by time, by shame, by secrecy and by social taboos against exploring certain areas of life experience. It became 'evident that traumatic life experiences during childhood and adolescence were far more common than generally recognised, were complexly interrelated, and were associated in a strong proportionate manner

to outcomes important to medical practice, public health and the social fabric of the nation' (Feletti and Anda, 2008, pp 2-3).

### The mind of a 'thug'

If we are to begin to make sense of the behaviour of some of the children who kill one another, we need to know who they are. This is, in great part, determined by what they have been through, and this is the story the media never give you.

Emma was 15 when she was caught as part of a gang involved in kicking a young man to death. Who was Emma? Imagine a child born to a teenage mother living on an estate where drugs and violence were the norm. The mother is on drugs or drinks in order to cope with her nightmares and her daily intrusive memories of being beaten up and raped by Emma's father and his mates. Emma was also beaten and saw what her father did to her mother. Her mother could not protect her and blamed her for being 'such a waste of time'. Emma was bright, but sitting in class proved to be a waste of time because she could not make sense of what the teacher said. She could hardly focus on the work and she could not remember anything anyway. Also, in the breaks, there were always boys making nasty rude comments about her, and the girls bullied and mocked her incessantly. She tried to tell a teacher what she was going through but the teacher told her to just try and be strong and forget it. She stopped going to school: 'What was the point,' she said, 'I just felt stupid'.

When Emma was 12, her mother went to live with another man and he did not want Emma around. Her grandmother, who had been kind to her, had died. Her father or his friends were looking for her to rape her. She took to living more and more on the streets and found herself with other children like her, and they looked after each other, in their sort of way, stealing food and alcohol to fight off the flashbacks of their frightening past. The problem was that Emma got involved in carrying drugs to get some money and, because her nightmares were so bad and her mind was so 'hyped up', she started to take them too and then had to give herself to the dealers to pay for the drugs. At times, she felt so desperate she would cut herself and then she felt a momentary peace. But it did not last long. She moved from one group of children to another, in search of safety and company, but it was scary because the bigger boys wanted sex from her and then there were the fights. The gang leaders made it clear you were either with them or you could be treated as outsiders were treated. Several times she saw boys she knew being attacked with knives and once she was threatened by a guy who thought she was laughing at him.

Emma became more and more terrified, hyper-alert, looking for danger everywhere she went. It would just take a look or a gesture and a fight would

start. Everyone was on edge, trying to survive and at times fighting for their lives. You could trust no one, certainly not the adults. The police never helped; they just took your knife away or took you to the prison and locked you in a cell. That was hell because, with nothing to do, the flashbacks and nightmares got so bad that Emma began to believe all the horrible things she was seeing were really happening and she heard the voices of her father and his mates laughing at her and threatening her. She was desperate to get out of the cell and to get back onto the drugs; they were the only things that worked for her and kept the nightmares away.

Emma's behaviour illustrates what happens to traumatised minds and how some children cope with the symptoms. As Teicher (2000, p 67) said: 'Our brains are sculpted by our early experiences. Maltreatment is a chisel that shapes the brain to contend with strife but at the cost of enduring wounds'. The human brain does not develop in a vacuum: it responds and interacts with its environment as it grows in the womb and then within the context of a family and a community. It has specific needs if it is to grow to its full potential. If those needs are not fulfilled and if the brain is further damaged by what it is subjected to during the developmental process, the result will be the production of a dysfunctional brain: violent behaviour is only one of such a brain's many manifestations.

### The effects of maltreatment on brain development

As soon as they are born, human infants, like other mammals, are genetically predisposed to want access or proximity to an attachment figure, especially when they are frightened or in need. When reunited with their caregivers or, later, with those they love, they have a nice reassuring warm feeling largely produced by endogenous opiates. Separation leads to distress and a decrease in those endogenous opiates. Panksepp et al (1985, p 25) described social bonding as an 'opiate addiction'.

### Caregiver–infant attunement within a secure attachment

Research on attachment is based on many studies of both primate and human behaviour; the earliest of which were Harlow's 'mother–infant separation experiments' on rhesus monkeys (Harlow, 1974). The earlier and the longer the infants were separated from their mother, the worse the long-term effects on their behaviour. These infants showed self-destructive and self-stimulating behaviour (that is, rocking and head-banging movements), a failure to discriminate social cues and grossly abnormal and ASB in adulthood. If artificially inseminated, the female monkeys were observed mutilating or even killing their infants. These findings were used by Bowlby (1988) to develop his view that attachment behaviour is fundamental to our

understanding of human behaviour. His theory has now been backed up by over 20 years of research in the field.

The brain substrate of attachment behaviour essentially involves a large part of the right hemisphere and, in particular, the supraorbital area of the brain, which is crucial to our capacity to empathise with others, and the limbic system and paralimbic system. The infant brain is moulded by its earliest experiences with its caregiver(s). It is the caregiver's capacity to attune to the infant's signals that is so crucial in the first two years of life. This is achieved by holding, caressing, smiling, stimulating or calming the infant. The stimulation and affect modulation that takes place between caregiver and infant is what enables the infant brain to develop the capacity both to modulate affect and to identify and communicate emotional states.

The caregiver also demonstrates reflective functioning by giving meaning to the infant's experiences and predicting their behaviour. This interaction results in a child who can put himself (or herself) in the mind of another. It enables people to understand each other in terms of their mental states, to interact successfully and to develop a sense of agency and continuity (Fonagy and Target, 1997). These infants are securely attached and this will protect them from developing post-traumatic stress disorder (PTSD) in potentially traumatic situations (Schore, 1996, 2001; Siegel, 2001). Fonagy and Target (1997) also provide evidence that, even if a child has a deprived or abusive family life, the empathic understanding coming from an outsider (teacher, health worker or relative) can compensate for the effects of childhood abuse and protect against future re-enactment and future traumatisation.

The 'sculpting' of the infant brain that takes place during the first two years of an infant's life is one during which its 50 trillion brain synapses present at birth explode into a 1,000 trillion synapses, a huge increase in brain connections resulting from the combined interaction of both genetically induced developmental pathways and the external stimulation and emotional modulation provided by the infant's attachment figures. Some of the synapses are formed and 'hardwired' as a result of stimulation, while others are 'pruned' or dissolved due to the lack of it. The effects of severe emotional neglect and absence of stimulation were starkly illustrated by the brain scans of Romanian orphans, which showed black empty spaces in the supraorbital areas.

### **The laying down of future templates of attachment behaviour**

The daily interactions between infant and caregiver provide the memories that the infant's brain synthesises into what Bowlby (1988) called 'working models'. These are internal representations or templates of how the attachment figure, and subsequent attachment figures, will be expected to respond to the child's attachment behaviour. They were identified through the work of Ainsworth et al (1978) and Main and Hesse

(1992) observing the response of one-year-old infants when separated and then reunited with their caregivers in the 'Strange Situation'!

Sroufe and his colleagues concluded from their study on four year olds that these 'working models' are internalised whole relationships (Troy and Sroufe, 1987). This means that insecurely attached individuals can recreate their attachment experience either from the perspective of the victim or from the perspective of the abuser, depending on the context they are in. An important finding in their study is that the secure children did not become either bullies or victims, unlike their insecure counterparts: bullying or being bullied appears to be the prerogative of the insecurely attached.

### **Wounds of the mind in children who have been abused**

Parents vary in how they bring up their children, and their infants develop different strategies to gain proximity to their caregivers in order to survive. These are: the anxious ambivalent response; the avoidant response; and the disorganised response (Ainsworth et al, 1978; Main and Hesse, 1992). We will focus on the last two attachment patterns as potential sources of violence. Essentially, the less the caregiver has their child's mind in their mind, the more damage they can inflict to the developing brain of their infant.

#### ***The avoidant attachment***

Twenty to twenty-five per cent of Ainsworth et al's (1978) middle-class sample experienced rejection when in need of their parent. By the age of one they had developed an apparent indifference to being separated from their attachment figure in the Strange Situation. However, their elevated heart rate betrayed their separation anxiety. Most of these children developed conduct disorders and tended to deny the importance of attachment relations. They also tended to be bullies (Sroufe, 2005).

Children sent to boarding school at an early age can develop this form of attachment behaviour in order to cope with the premature separation from their parents and families: the resulting 'stiff upper lip' attitude to life was invaluable in the making of officers in the days of the Empire. However, their limited experience of normal family and community life may contribute to the difficulty politicians and civil servants have in understanding, let alone tackling, the problems of violence in the community.

#### ***The disorganised attachment: psychological trauma in childhood***

Around 15% of Main and Hesse's (1992) sample of infants showed a 'disorganised' response in relation to their caregiver's return following separation in the Strange

Situation: they often froze in trance-like states like adults suffering from PTSD. Their caregivers were frightening either because they directly abused their child or because they themselves suffered from the effects of psychological trauma or PTSD.

### **A mother's nightmare revisited**

A Turkish mother, who was suffering from symptoms of PTSD following being raped in prison, reported how her child, a product of the rape, would remind her at times of the rapist. At such times she would find herself reliving the horror of her past, unable to care for or comfort her infant who was subjected to her terrified and angry emotions.

This type of parental behaviour leaves the child in a state of fear without solution in that both the attachment response and the fear response are activated simultaneously (Main and Hesse, 1992).

What do we mean by this?

### **The origin of dissociation**

In the face of a terrifying parent who is abusing them emotionally or physically, the child, like any mammal, has three options: to fight, to flee or to freeze, all responses dictated by the autonomic system of our reptilian brain with little or no involvement of the cortex or thinking brain.

As Perry et al (1995) describe, the infant psychobiological response to feeling threatened by their caregiver involves three stages:

- (1) The fight–flight response mediated by the sympathetic system. This bypasses the cortical centres and their capacity for symbolic processing with the result that traumatic experiences are stored in somatic, behavioural and affective systems. These experiences will be relived later in the form of somatic flashbacks.
- (2) If the fight–flight response is not possible, as will usually be the case with a small vulnerable child, the parasympathetic state takes over and the child 'freezes', which, in nature, may be linked to feigning death in order to survive. Vocalisation tends also to be inhibited and children, like young animals, may lose the capacity to speak and become mute, a phenomenon that is related to the release of endogenous opiates and the shutting down of the speech area, as observed in the positron emission tomography (PET) scans on adult patients suffering from PTSD (Rauch et al, 1996).
- (3) Finally, when attacked or rejected by their caregiver, the infant is in a state of 'fear without solution' where both the above responses are activated, leading to a dissociative response (Main and Hesse, 1992). By this I mean that children, in fear of their caregiver's hatred and violence, can only maintain their vital attachment

to this desperately needed caregiver by resorting to 'dissociation', that is, creating different representations of themselves in relation to their caregiver. This results in a lack of self-continuity in relation to the 'other', as can be seen in patients suffering from a borderline personality disorder (Fonagy and Target, 1997; Ogawa et al, 1997; Ryle, 1997; Zulueta, 1999), complex PTSD (Herman, 1992a, 1992b) or developmental trauma (Van der Kolk, 2005). In other words, in order to ensure their survival, these terrified infants will develop an idealised (and often unconscious) attachment to their caregiver, on whom they continue to rely on in their minds, while all their terrifying 'self-other interactions' with the same caregiver become dissociated or unavailable to the conscious self. The result is a fragmented self.

The dissociated experiences will be relived in the form of flashbacks or nightmares when triggered into conscience by a memory or some sensory reminder, such as going to bed at night for the child who has been sexually abused, or being humiliated or made to feel helpless.

People with childhood PTSD will also re-traumatise themselves in some desperate attempt to gain control or as a means to get a chemical fix through the release of endogenous opiates; this is also the case for adults with PTSD. This is because, in certain life-threatening situations, our bodies can release endogenous opiates to produce analgesia. This also happens when traumatised individuals re-traumatise themselves through either cutting themselves or by using other forms of self-injury or traumatic re-enactments in order to get a 'high' and thereby cope with the unbearable feelings they cannot modulate (Van der Kolk, 1996).

### ***The 'moral defence'***

At a cognitive level, these children, and later adults, will tend to blame themselves and feel guilty rather than blame their caregiver for what happened to them. By taking the blame and being 'bad', and thereby keeping the caregiver as an idealised figure in their mind, these children gain a sense of control in the face of unbearable helplessness. They also preserve the hope that in the future, if they behave well, they will finally get the love and care they did not have. This cognitive defence, aptly called the 'moral defence' by Fairbairn (1952), is ferociously maintained in order to avoid the unbearable realisation that there is really no such idealised parent, a discovery that leads to grief and a sense of hopelessness.

### ***The traumatic attachment***

The cost to both child and adult of maintaining this 'traumatic attachment' to the abusing or neglectful parent is a heavy one. In seeking the parental care they never had, these individuals will tend to destroy available intimate adult relationships. They

will also tend to sabotage their achievements, and any progress they may make in treatment, in order to continue their search for the idealised parent they still yearn for, albeit unconsciously (Zulueta, 2006a). This is why the successful weight-losers dropped out of the programme in the study on adverse childhood experiences mentioned above (Feletti and Anda, 2008). In some cases, this inner conflict and resulting sense of intense vulnerability can also lead, paradoxically, to homicide (Zulueta, 2006a, 2006b, pp 137-51). Addressing this 'traumatic attachment' and its cognitive distortions may well be central to the treatment of patients with a history of child abuse or severe neglect.

### **Traumatic attachment: triggering violent behaviour in an adult**

Dr X had done some therapeutic work with A, a 43-year-old single man who was imprisoned for killing his friend while out stealing in the countryside. On being interviewed by Dr X, A gave a history of being 'battered' by his mother when a child. He had admitted that he was frightened of her and had begun to make links between his fear and his violent behaviour.

The therapist then said, 'Say your mother was sitting over there, what would you say to her?' The patient developed a marked fear response, very similar to that of a small child, and he said that he was unable to imagine himself saying to an imaginary mother in the room: 'Mother, you can't hit me any more. I am an adult'. 'What would stop you?' asks the therapist. 'Fear,' replies the big man in front of him. 'Fear of what? What is she going to do?', asks his therapist. 'Well she might get up and clout me.'

Even after admitting that his mother is now an 85-year-old fragile little woman compared to him, he says that he cannot disagree with her, let alone hit her. A is speaking and behaving like a small boy and, although he does seem aware of the fact that his fear of his old mother is irrational, the reality is that, at that moment in time, faced with his imaginary mother, the mother in his head, he can only admit to fear, the fear of a child who is terrified of being battered.

As it turns out, this man battered his friend to death when the latter insisted that they spend the night in the comfort of his mother's house and 'mouthed' Lenny when he refused (Zulueta, 2006a).

### **Lost for words**

Henry (1997) has noted that many patients suffering from developmental PTSD also suffered from alexithymia, which is defined as an inability to describe emotions in words and symbols in order to cope with disturbing feelings. As a result, such patients will show a tendency to re-enact their traumatic experience rather than think. The resulting effect is that of re-traumatisation (Van der Kolk, 1996). Alexithymia appears

to be associated with an inter-hemispheric transfer deficit (Zeitlin et al, 1989) and is more likely to occur if the trauma is repeated, as in sexual abuse (Zeitlin et al, 1993).

### ***Inability to regulate emotions***

The loss or inability to regulate intense feelings is probably the most far-reaching effect of a failure of attunement in infancy following repeated traumatisation (Van der Kolk, 1996, 2005). As a result, these children have little capacity to modulate sympathetic dominant affects like terror, rage and even elation, or parasympathetic dominant affects like shame, disgust and despair.

Shame, when it is the emotional reaction to a self that has been totally invalidated, is extremely important in triggering violent reactions in victims of chronic neglect and abuse. The basic cause of violent behaviour is the wish to ward off or eliminate the feelings of shame or humiliation – feelings that are painful and that can even be intolerable and overwhelming – and replace them with the opposite – feelings of power and pride. 'I was disrespected,' said a murderer. 'Better be bad than not at all' (Gilligan, 1996, p 29).

### ***Persistent fear response and hyper-arousal***

The result of early and repeated traumatisation of a child's brain produces changes in the neurochemical systems of the brain that lead to poor attention and concentration, disturbed sleep and poor impulse control and fine motor control. This chronic activation of the brain can lead to a reduction in size of the hippocampus, which is involved in cognition and memory (Perry, 2000).

The combined effect of repeated re-traumatisation and the reliving of the traumatic experiences in the form of flashbacks and nightmares sets the brain into a state of quasi-permanent hyper-arousal. The child's brain has become adapted to a world that is unpredictable and dangerous; it is hyper-vigilant, focused on non-verbal cues that may be threatening (Perry et al, 1995), particularly cues that are linked to earlier traumatic experiences. In this way, a 'look', a gesture, may be enough to trigger the child into a state of re-enactment in which he (and his knife) do to the other what was once done to them. The act of murder in a state of dissociation bypasses the thinking brain as the child gains control over his terror: the 'other' lying in a pool of blood on the sidewalk is not the human being that you and I see: he is the threat of the past that has to be eliminated.

The regions of the brain involved in hyper-arousal are always 'on', and because of this the child may frequently experience hyperactivity, anxiety, impulsivity and sleep problems (Perry et al, 1995). To learn and incorporate new information, whether it

be a lesson or a new social experience, the brain must be in a state of 'attentive calm', a state a traumatised child rarely achieves. For this reason, many of these otherwise intelligent children are diagnosed with learning disabilities (Perry, 1999).

Males are more likely to display 'fight and flight' responses and tachycardia when exposed to fearful experiences (Perry et al, 1995). But, in some adolescent boys, the damage is so profound that their heart rate normalises over time and some report a 'soothing' feeling when they begin 'stalking' a potential victim (Perry et al, 1997). This reaction was reported following the murder of a Londoner by two adolescents, when one of them said that he got a 'buzz' when stalking his victim. It may also relate to a study on criminal men, which showed lower heart rates than controls or anti-social men (Raine et al, 1995).

Females are more likely to dissociate when exposed to a traumatic event and internalise their symptoms, that is, present with depression and self-destructive behaviour (Perry et al, 1995). However, as they grow older, they too can become hyper-aroused.

### **Visible brain damage**

The brains of severely deprived and abused children are significantly smaller than those of non-abused children. The limbic system (which governs emotions) can be 20% to 30% smaller and tends to have fewer synapses. Similarly, the hippocampus (responsible for memory) is smaller in many abused children. There is also increased activity in the locus coeruleus (responsible for hair-trigger alert) in children from violent families (Shaw and Winslow, 1997).

## **Prevention based on a model of violence as a disease**

### **Transmission through the cycle of violence**

The longer we avoid tackling the origins of violence in our society, the worse the outcome. Violence can be best understood as a disease, as a symptom of a dysfunctional society (Zulueta, 1998). As we saw in the studies on adverse childhood experiences, the consequences of violence are many and costly, both to the individual sufferer and to society. The worst aspect is that the 'virus' of violence can be transmitted down the generations through the attachment system. Van Ijzendoorn and Bakermans-Kranenberg (1997) showed that there is a 75% correspondence between parents' mental representations of attachment (using the Adult Attachment Interview developed by Main and Hesse, 1992) and their infants' attachment security. Mothers suffering from PTSD due to childhood abuse or adult traumas transmit their low levels of cortisol to their offspring, predisposing them to developing PTSD in later life (Yehuda, 1997; Yehuda et al, 2002, 2005).

### ***Manifestations of the disease***

Children who have been abused or neglected are considerably more likely to have personality disorders and high symptom levels in early adulthood (Weiler and Widom, 1996; Johnson et al, 1999). Sroufe's 19-year prospective study on disorganised infants shows that they tend to develop dissociative disorders such as borderline personality disorders or other dissociative disorders (Ogawa et al, 1997). People with childhood histories of trauma make up almost the entire criminal justice population in the US (Teplin et al, 2002). I believe that figures for the UK are not very different. Three quarters of the perpetrators of child sexual abuse have been sexually abused in childhood (Romano and De Luca, 1997).

### ***Who is at risk and when to intervene?***

The seeds of violence are laid down in the first two years of life. It is important to remember that male infants are physically and emotionally more vulnerable than their female counterparts and that male aggressive behaviour is highly stable as early as the age of two.

In hospital, if a baby shows neurological signs of impairment and has a mother who is depressed, domestically abused, a single teenager, on drugs or alcohol or all of these things, the mother is considered to be a risk to her baby. In the Dunedin study (Moffit and Caspi, 1998), trained nurses observing three-year-old children at play for 90 minutes were able to identify those 'at risk': they were restless and negative, and lacked persistence and attention. At age 21, males in the 'at-risk' group were compared with other 21-year-olds: 47% abused their partners (compared with 9.5% of others); three times as many had an anti-social personality; two and a half times as many had two or more criminal convictions. Fifty-five per cent of offences committed by the 'at-risk' group were violent compared with 18% of others. The 'at-risk' group not only committed many more violent offences, but also much more severe ones, such as robbery, rape and homicide (Moffit and Caspi, 1998).

Fewer of the females became conduct-disordered, but, where they did, 30% of the 'at-risk' group had teenage births (the others had none) and 43% were in violent, abusive relationships (Caspi et al, 1996). The authors conclude that immature mothers with no strong parenting skills, and violent partners, have already borne the next generation of 'at risk' children (Caspi et al, 1996).

In a study by Shaw and Winslow (1997), low maternal responsiveness, that is, low attunement, predicted the following in the infant:

- at 1.5 years: aggression, non-compliance, tantrums
- at 2 years: lower compliance, attention getting, hitting
- at 3 years: problems with other children

at 3.5 years: higher coercive behaviour  
at 6 years: fighting and stealing.

We now know that the earlier the interventions in helping parents to attune with their infants (that is, during pregnancy and infancy), the less expensive and the more effective they are. Many of these interventions are reviewed by the Wave Trust ([www.wavetrust.org](http://www.wavetrust.org)) and many American websites, but a recent short intervention in the Netherlands stands out for being effective, cheap and user-friendly. It is a sensitivity-focused intervention of up to only 16 sessions and no more, which succeeds in reducing disorganised attachment and promoting secure attachment in infants. The Dutch team achieve this by introducing a trained worker to the family – who could be a health visitor, for instance – and by using a video-feedback intervention to promote positive parenting (VIPP), focusing on those moments when the mother attunes to her child. The model has been extended to ways of sensitively disciplining infants and toddlers. The reason why the method is effective and popular is that the parent is her own model and her sensitive behaviour is reinforced so that she feels she is doing the right thing (Bakerman-Kranenburg et al, 2008). The parent is not made to feel that they are bad or criminal, unlike many targeted parents in the UK.

By the time children are going to school and are in the community, what do we look for in terms of risk for future violent behaviour? Children who are neglected physically and psychologically, left alone without adequate supervision and whose parents are involved in drugs, the justice system or who are mentally ill are at risk. Once at school, we look for those kids who do not do well, who truant, bully, are involved in alcohol, drugs and gangs and who are arrested for delinquency. But, by this point, intervention is more difficult and costly. So we lock them up and make them worse. However, what youths in South London asked for, according to a recent Dispatches survey, was more job opportunities, more and better youth clubs and sports facilities, better control and discipline from parents, more police on the streets and more help for gang members to leave their violent lifestyle (Channel 4 News, 2008).

## Conclusions

Empathy is key to understanding violence. By their first year, infants can react to suffering by showing empathy, indifference or hostility. Violent offenders show little or no empathy at all because they do not experience themselves or 'others' as human beings. This is the nub of the problem and one that people find hard to accept.

Since violence is triggered in high-propensity people by social factors (poverty, drugs, alcohol, television) that are difficult to change, reducing the number of people with a propensity to violence would make strategic sense. If violence costs the UK more than £20 billion per annum (Lord Bassam, 2001) and the cost of locking up a child with severe 'conduct disorder' is around £100,000 per annum, one would imagine that there would be a purely financial incentive in going for prevention in the UK.

And yet the ratio of the current cost of preventing of crime compared to the cost of its consequences is 1:300. If we are to take these figures seriously, it is clear that violence is here to stay: in the UK the well-being of our children is apparently of little concern.

Compared to other European countries, the UK has a very low age of criminal responsibility and high numbers of children are locked up. Most professionals working in the area of criminal justice agree that too many children are being criminalised and brought into the youth justice system too early. As other contributors to this volume assert, the UK needs to adopt a strategy that reduces the custody of young people and uses the vast resources spent on prisons for preventive work in the community.

The fact that these unhappy children become the criminals, patients, parents and voters of the future does not mean that anything will change because, as I have pointed out, the more neglected or abused we may have been, the less likely we are to acknowledge it and the more likely we are to cling to the belief that our parents were right, that what we need is more punishment. Since many British politicians and civil servants have been brought up in private boarding schools, cut off from their families and from the rough and tumble of British multi-ethnic city life, with very little real experience of inner-city life, they are likely to follow the same inclination as their ancestors in the pursuit of law and order and aim 'to clamp down on knife crime' and 'curb street gangs' and build still more prisons, following closely our American model.

There is, however, one small hope. By being exposed to some of the terror our deprived children feel and express through their callous actions, a sufficient number of leaders with a vision of a better future for us all may turn to the scientific evidence at hand and invest in long-term prevention.

### Note

<sup>1</sup> The 'Strange Situation' test: a mother and child are put in a room together full of toys under observation (Episode 1 and 2). A stranger is then introduced to see how the infant responds (Episode 3). The mother then leaves the room unobtrusively so that her infant is alone with the stranger (Episode 4). How does the infant respond to the mother's first departure? Mother returns, greeting and comforting the infant, encouraging her to play again. Mother leaves the room again, saying 'bye, bye' (Episode 5). The infant is alone for the second separation episode (Episode 6). The stranger returns (Episode 7) and then the mother and infant are reunited (Episode 8) (Ainsworth et al, 1978).

## References

- Ainsworth, M.D.S., Blehar, M.C., Waters, E. and Wall, S. (1978) *Patterns of attachment: A psychological study of the Strange Situation*, Hillsdale, NJ: Lawrence Erlbaum Associates.
- Bakerman-Kranenburg, M.J., Van Ijzendoorn, M.H. and Juffer, F. (2008) *Promoting positive parenting*, Abingdon: Taylor & Francis.
- Bowlby, J. (1988) *A secure base: Clinical applications of attachment theory*, London: Routledge.
- Camelot Foundation and the Mental Health Foundation (2006) *Truth hurts: Report of the national inquiry into self-harm in young people*, London: Camelot Foundation and the Mental Health Foundation.
- Caspi, A., Moffitt, T.E., Newman, D.L. and Silva, P.A. (1996) 'Behavioural observations at age 3 years predict adult psychiatric disorders', *Archives of General Psychiatry*, vol 53, pp 1033-9.
- Cawson, P., Watta, C., Brooker, S. and Kelly, G. (2000) *Child maltreatment in the United Kingdom: A study of the prevalence of child abuse and neglect*, London: NSPCC.
- Channel 4 News (2008) *Dispatches survey into youth on youth serious violence: 100 youths in south London*, 28 January, [www.channel4.com/news/media/current\\_affairs/pdfs/whykidskill20surveyresults.pdf](http://www.channel4.com/news/media/current_affairs/pdfs/whykidskill20surveyresults.pdf)
- Coleman, K., Jansson, K., Kaiza, P. and Reed, E. (2007) *Homicides, firearms offences and intimate violence 2005/2006: Supplementary volume 1 to Crime in England and Wales 2005/2006*, London: Home Office.
- Coid, J., Petrukevitch, A., Chung, W.-S., Richardson, J. Moorey, S., Cotter, S. and Feder, G.S. (2003) 'Sexual violence against adult women primary care attendants in east London', *British Journal of General Practice*, vol 53, pp 858-62.
- Department of Health: Health Inequalities website ([www.dh.gov.uk/en/PublicHealth/Healthinequalities/index.htm](http://www.dh.gov.uk/en/PublicHealth/Healthinequalities/index.htm)).
- Fairbairn, R. (1952) *Psychoanalytic study of the personality*, London: Routledge & Kegan Paul.
- Feletti, P. and Anda, R. (2008) 'The relationship of adverse childhood experiences to adult health, well being, social function and healthcare', in Lanius/Vermetten (eds) *The hidden epidemic: The impact of early life trauma on health and disease*, Cambridge: Cambridge University Press.
- Fonagy, P. and Target, M. (1997) 'Attachment and reflective function: their role in self organisation', *Development and Psychopathology*, vol 9, no 4, pp 679-700.
- Gilligan, J. (1996) *Violence, our deadly epidemic and its causes*, New York: G.P. Putnam's Sons.
- Harlow, H.F. (1974) *Learning to love* (2nd edn), New York/London: Jason Aronson.
- Henry, J. (1997) 'Psychological and physiological responses to stress: the right hemisphere and the hypothalamic-pituitary-adrenal-axis, an inquiry into problems of human bonding', *Acta Physiologica Scandinavica*, vol 161, pp 164-9.
- Herman, J.L. (1992a) 'Complex PTSD: a syndrome in survivors of prolonged and repeated trauma', *Journal of Traumatic Stress*, vol 5, pp 377-91.
- Herman, J.L. (1992b) *Trauma and recovery: The aftermath of violence from domestic abuse to political terror*, New York: Basic Books.

- HM Government (2008) *Youth crime action plan 2008*, London: COI.
- Johnson, J.G., Cohen, P., Brown, J., Smailes, E.M. and Bernstein, D.P. (1999) 'Childhood maltreatment increases risk for personality disorders during early adulthood', *Archives of General Psychiatry*, vol 56, pp 600-6.
- London Child Poverty Commission (2008) *Capital gains*, London: London Councils.
- Lord Bassam (2001) House of Lords debate, 31 January.
- Main, M. and Hesse, E. (1992) 'Disorganised/disorientated infant behaviour in the Strange Situation: lapses in monitoring of reasoning and discourse during the parent's adult attachment interview, and dissociative states', in M. Ammanati and D. Stern (eds) *Attachment and psychoanalysis*, Rome: Gius Laterza and Figli, pp 86-140.
- McCarney, W. (1996) 'Domestic violence', *British Juvenile and Family Court Society Newsletter*, 1-3 April.
- Moffitt, T.E. and Caspi, A. (1998) 'Annotation: implications of violence between intimate partners for child psychologists and psychiatrists', *Journal of Child Psychology and Psychiatry*, vol 39, no 2, pp 137-44.
- Ogawa, J.R., Sroufe, L.A., Weinfield, N.S., Carlson, E.A. and Egeland, B. (1997) 'Development of the fragmented self: longitudinal study of dissociative symptomatology in a non clinical sample', *Development and Psychopathology*, vol 9, pp 855-79.
- Panksepp, J., Siviy, S.M. and Normansell, L.A. (1985) 'Brain opioids and social emotions', in M. Reite and T. Field (eds) *The psychobiology of attachment and separation* (pp 3-49), London: Academic Press.
- Perry, B.D. (1999) 'Memories of fear: how the brain stores and retrieves physiologic states, feelings, behaviors and thoughts from traumatic events', in J. Goodwin and R. Attia (eds) *Splintered reflections: Images of the body in trauma*, Boulder, CO: Basic Books.
- Perry, B.D. (2001) 'The neurodevelopmental impact of violence in childhood', in D. Schetky and E. Benedek (eds) *Textbook of child and adolescent forensic psychiatry*, Washington, DC: American Psychiatric Press.
- Perry, B.D., Arvinte, A., Marcellus, J. and Pollard, R.A. (1997) 'Syncope, bradycardia, cataplexy and paralysis: sensitisation of an opioid – mediated dissociative response following childhood trauma', *Journal of the American Academy of Child and Adolescent Psychiatry*.
- Perry, B.D., Pollard, R.A., Blakeley, T.L., Baker, W.L. and Vigilante, D. (1995) 'Childhood trauma, the neurobiology of adaptation, and 'use-dependent' development of the brain: how "states" become "traits"', *Infant Mental Health Journal*, vol 16, pp 271-91.
- Povey, D. and colleagues (2001) *Recorded crime statistics: England and Wales, Home Office Statistical Bulletin 18/99*, London: Home Office ([www.homeoffice.gov.uk/rds/pdfs/hosb1801.pdf](http://www.homeoffice.gov.uk/rds/pdfs/hosb1801.pdf)).
- Raine, A., Venables, P.H. and Williams, M. (1995) 'High autonomic arousal and electrodermal orienting at age 15 years as a protective factor against criminal behaviour at age 29 years', *American Journal of Psychiatry*, vol 152, pp 1595-1600.

- Rauch, S.L., Van der Kolk, B.A., Fisler, R.E., Albert, N.M., Orr, S.P., Savage, C.R., Fischman, A.J., Jenike, M.A. and Pitman, R.K. (1996) 'A symptom provocation study of post traumatic stress disorder using positron emission tomography and script driven imagery', *Archives of General Psychiatry*, vol 53, pp 380-7.
- Revell, J. (2008) 'Shock rise in violence against UK's children', *The Observer*, 20 July.
- Roe, S. and Ashe, J. (2008) *Young people and crime: Findings from the 2006 Offending, Crime and Justice Survey*, Statistical Bulletin, London: Home Office.
- Romano, E. and De Luca, R.V. (1997) 'Exploring the relationship between childhood sexual abuse and adult sexual perpetration', *Journal of Family Violence*, vol 12, pp 85-98.
- Ryle, A. (1997) 'The structure and development of borderline personality disorder: a proposed model', *British Journal of Psychiatry*, vol 170, pp 82-7.
- Schore, A.N. (1996) 'Experience dependent maturation of a regulatory system in the orbital pre-frontal cortex and the origin of developmental psychopathology', *Development and Psychopathology*, vol 8, pp 59-87.
- Schore, A.N. (2001) 'The effects of early relational trauma on right brain development, affect regulation, and infant mental health', *Infant Mental Health Journal*, vol 22, pp 201-69.
- Shaw, D.S. and Winslow, E.B. (1997) 'Precursors and correlates of antisocial behaviour from infancy to preschool', in D.M. Stoff, J. Breiling and J.D. Maser (eds) *Handbook of antisocial behaviour*, New York: Wiley.
- Siegel, D.J. (2001) 'Toward an interpersonal neurobiology of the developing mind: attachment relationships, "mindsight", and neural integration', *Infant Mental Health Journal*, vol 22, pp 67-94.
- Sroufe, A.L. (2005) 'Attachment and development: a prospective longitudinal study from birth to adulthood', *Attachment and Human Development*, vol 7, pp 349-67.
- Teicher, M.D. (2000) 'Wounds that time won't heal: the neurobiology of child abuse', *Cerebrum: the Dana Forum on brain science*, vol 2, pp 50-67.
- Teplin, L.A., Abram, K.M., McClelland, G.M., Dulcan, M.K. and Mericle, A.A. (2002) 'Psychiatric disorders in youth in juvenile detention', *Archives of General Psychiatry*, vol 59, pp 1133-43.
- Troy, M. and Sroufe, L.A. (1987) 'Victimisation among preschoolers: role of attachment relationship history', *Journal of American Academy of Child and Adolescent Psychiatry*, vol 26, pp 166-72.
- UNICEF (United Nations Children's Fund) (2003) *A league table of child maltreatment and deaths in rich nations*, Report Card 5, Innocenti Research Centre, Florence: UNICEF.
- Van der Kolk, B.A. (1996) 'The body keeps the score: approaches to the psychobiology of post traumatic stress disorder', in B.A. Van der Kolk, A.C. McFarlane and L. Weisaeth (eds) *Traumatic stress: The effects of overwhelming experience on mind, body, and society* (pp 214-41), New York: Guilford Press.
- Van der Kolk, B.A. (2005) 'Developmental trauma disorder', *Psychiatric Annals*, vol 35-5, May, pp 401-8.
- Watt, G.C.M. (1996) 'All together now: why social deprivation matters to everyone', *British Medical Journal*, vol 312, pp 1026-9.

- Weiler, B. and Widom, C.S. (1996) 'Psychopathy and violent behaviour in abused and neglected young adults', *Criminal Behaviour and Mental Health*, vol 6, pp 253-71.
- Yehuda, R. (1997) 'Sensitisation of the hypothalamic-pituitary axis in post traumatic stress disorder', in R. Yehuda and A.C. McFarlane (eds) *Psychobiology of post traumatic stress disorder*, pp 157-82.
- Yehuda, R., Halligan, S.L. and Bierer, L.M. (2002) 'Cortisol levels in adult offspring of Holocaust survivors: relation to PTSD symptom severity in the parent and the child', *Psychoneuroendocrinology*, vol 27, pp 171-80.
- Yehuda, R., Engel, S.M., Brand, S., Seckl, J., Marcus, S.M. and Berkowitz, G.S. (2005) 'Transgenerational effects of post traumatic stress disorder in babies of mothers exposed to the World Trade Center attacks during pregnancy', *Journal of Clinical Endocrinology and Metabolism*, vol 90, pp 4115-8.
- Zeitlin, S.D., McNally, R.J. and Cassidy, K.C. (1993) 'Alexithymia in victims of sexual assault: an effect of repeated traumatising', *American Journal of Psychiatry*, vol 150, pp 661-3.
- Zeitlin, S.D., Lane, R.D., O'Leary, D.S. and Schrifft, M.K. (1989) 'Inter-hemispheric transfer deficit and alexithymia', *American Journal of Psychiatry*, vol 146, pp 1434-9.
- Zulueta, F. de (1998) 'Human violence: a treatable epidemic', *Medicine, Conflict and Survival*, [www.informaworld.com/smpp/title~content=t713673482~db=all~tab=issueslist~branches=14-v1414](http://www.informaworld.com/smpp/title~content=t713673482~db=all~tab=issueslist~branches=14-v1414), pp 46-55
- Zulueta, F. de (1999) 'Borderline personality disorder as seen from an attachment perspective: a review', *Criminal Behaviour and Mental Health*, vol 9, pp 237-53.
- Zulueta, F. de (2006a) 'The role of the traumatic attachment in the assessment and treatment of adults with a history of childhood abuse and neglect', *British Journal of Forensic Practice*, vol 8, no 3, pp 4-15 ([www.pavpub.com/pavpub/journals/BJFP/thismonthssample.pdf](http://www.pavpub.com/pavpub/journals/BJFP/thismonthssample.pdf)).
- Zulueta, F. de (2006b) *From pain to violence: The roots of human destructiveness* (2nd edition), Chichester: John Wiley and Sons.