The trauma of depression in infants: a link with Attention Deficit Hyperactivity Disorder?

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'Things fall apart; the centre cannot hold' (The Second Coming. W. B. Yeats, 1967)

An 8 month old boy with dried tears on his face tries to wipe away the streaming tears on his depressed mother's face as she looks at him. If in the first 3 years the process of coming to know oneself through being known by another is vitally important, how is he coming to know himself? If the brain is a 'meaning-making machine' (Freeman 1995), what meaning has he made of his experience? That the world is a sad place and that he can't be lovable enough for his mother to feel happy about him? Will he later organize his experience to see himself as the cause of the trouble?

Historically, there was for a long time a difficulty in accepting that infants could be affected by their mothers' depression and become depressed themselves, or that they could react to painful and traumatic experiences with depression. There is still a persisting belief that infants will not remember and therefore painful and traumatic experience in early childhood have no serious longterm effects for them

Once we accept that the infant is processing from birth, and therefore thinking from birth, we can start to think about, and ask, what is the baby's experience? Empirical observations very much suggest that early events structure the developing brain. And the results from empirical studies demonstrating babies are directly affected by maternal depression cannot easily be ignored. The situation is therefore urgent for the infant.

There is now a classification for infant depression in the Diagnostic Classification Zero to 3 years (1994), which supplements the International Classification of Diseases, 10th revision (ICD-10; World Health Organization, 1992) and the Diagnostic and Statistical Manual (DSM-IV; American Psychiatric Association, 1994). It describes infants who exhibit a pattern of depressed or irritable mood with diminished interest and/or pleasure in developmentally appropriate activities, diminished capacity to protest, excessive whining, and a diminished repertory of social interactions and initiative. These symptoms may be accompanied by disturbances in sleep or eating, including weight loss. The symptoms must be present for at least two weeks.

I shall first outline selected research findings and then give some clinical vignettes. I want to start with some research which will be the keystone of the point I make that for an infant, the experience of depression can have, if not thought about and treated, far-reaching traumatic effects for the infant. I will then explore a possible continuity with Attention Deficit Hyperactivity Disorder (ADHD). In terms of the context in which the research was carried out, this was mainly in the United Kingdom and the USA, and where I refer to the mother this should be understood as the primary caregiver.

Research findings

Egeland and colleagues (Pianta et al, 1989) in a sound prospective study, the Minnesota Mother-Child Project, researched the effects of different kind of child maltreatment. They identified 267 mothers at risk for parenting problems. Of these families, 44 children were identified as abused and grouped into 4 groups, namely, physically abusive, neglectful, hostile-rejecting and psychologically unavailable. At 18 months the maltreated infants were significantly more likely to have an anxious attachment to their mothers than the well-cared for infants. But within this group of infants what is striking is how poorly the children of the psychologically unavailable mothers do, compared with those in the other three groups. The psychologically unavailable parents were unresponsive, detached, depressed, and uninvolved, had no pleasure in interaction with their infants, and failed to comfort them when distressed. Infants of these mothers declined dramatically in performance on the Bayley Scales of Infant Development from 9 to 18 months, and continued to show significantly more severe and varied problems than infants from the other three maltreated groups. Egeland and colleagues concluded that the earlier the abuse the more severe the consequences. They also thought that where there was

insensitivity on the part of mothers to their infants' cues and lack of response or support, this led to the infants failing to develop trust, and as toddlers failing to negotiate autonomy.

This suggests that what has the most traumatic effects for an infant is not necessarily an abusing or rejecting mother but one who is emotionally preoccupied and unavailable. This may not, of course, be the case for the individual child, but is likely to be so for most children. From the child's point of view, a mother who is abusive or rejecting may not be so all of the time and she certainly feels alive to the child. A child, on the other hand, who has a mother who is depressed, may feel that he is not worthy enough to make his mother pay attention to him and enjoy him. Thus a basic human motive, the wish to be enjoyed enthusiastically by another, is not met, so that the infant's response is likely to be one of shame and depression, as well as the continuing need to try to get the mother to pay attention to their existence.

Let me go back to the earliest days and weeks. In a study of newborn infants whose mothers had been assessed as depressed during the pregnancy, the infants' ratings on the Brazelton Neonatal Assessment Scale within 24 hours of birth showed decreased motor tone, lower activity levels and more unavailability and stress behaviours (Abrams et al, 1995). This suggests that these infants are already showing less than optimal behaviours at birth.

If a primary feeling, which the baby experiences, is one of depression, what is happening to the infant's brain? The neurobiological research suggests that as infants mirror their mothers' depressed feelings in their own facial expressions, there are corresponding measurable changes in brain activity and vagal tone. Tiffany Field and her colleagues (Field, Fox, Pickens, & Nawrocki, 1995) have found that infants as young as 3 months of age whose mothers were depressed were more likely to demonstrate the same kind of EEG patterns as those found in adults with depression. Those infants exposed to the most severe depressive symptoms in their mothers exhibited the most extreme right frontal EEG asymmetry. While the possibility that this reflects an endogenous trait cannot be dismissed, several researchers after reviewing other empirical evidence have argued that the EEG changes come about as a result of repeated exposure to a depressed mother. The situation is urgent for the distressed infant and her parents.

The ways in which infant experience helps to organize the developing brain are being mapped. There is evidence to suggest that traumatic events in childhood may change the biology of the brain. Perry (Perry et al 1995a,b) argues that when an infant is traumatised by some of her experiences this affects the neural pathways so that the young child becomes sensitised to react to future situations of perceived threat with hyperarousal or dissociative defences. Karr-Morse & Wiley (1997) state, 'The chronic overactivation of neurochemical responses to threat in the central nervous system, particularly in the earliest years of life, can result in lifelong states of either dissociation or hyperarousal (p 168).'

Lynne Murray has carried out considerable research on the effects of maternal depression on children's development. An early finding was that infants whose mothers are depressed are, by the time that they are one year old, significantly more likely to be insecurely attached to their mothers than securely attached. Murray (1997) found that, even if the mothers' depression resolved by 2 months after birth, the children by the time they were 5 years old showed more self-negativity and less sense of agency. There were also effects in lowered IQ and cognitive difficulties although these diminished in subsequent years.
Joan Luby (2000) points out that the possibility of treatment resistance in depression after age 6 underscores the need for clinical intervention or prevention at an earlier stage of central nervous system and emotional development. Sroufe (2000) suggests that both an insecure resistant or an insecure avoidant attachment as an infant appear to be related to depression in adolescents or adults. So that, while, for example, an avoidant attachment may be adaptive in protecting an insecure infant from the full impact of her mother's depression it may be unhelpful later on.

Just to summaries then, there may be a number of contributants to infant depression. The infant may have his own overwhelming distress or depression if, for example he has had difficult experiences in neonatal intensive care or frightening, painful hospital procedures or a separation from his mother which he found traumatic. Or his response may be to the loss of his mother psychically because of her own depression, or her unremitting sadness because of an unresolved loss.

Where a mother is depressed or experiencing difficulties in her relationship with her child, we have to treat the relationship and the infant, not just the mother. Work with the mother, or parents on their own, can be very relieving for them but often more is needed for the infant. Ways of helping the mother-infant relationship and the infant have been developed. Often it can take just a few sessions. We can do this in group therapy or infant-parent psychotherapy.

Clinical illustrations

For some parents and their infants, weekly psychotherapy groups are very supportive. These follow the core principle of infant-parent psychotherapy, that is, that the infant is equally a focus of the intervention as the parents are. Campbell Paul, an Infant Psychiatrist at the Royal Children's Hospital in Melbourne, and I have, since 1992, run a group for mothers and babies in the first year of life (Paul and Thomson-Salo, 1997). The following vignette illustrates how quickly change may come about for an infant in the Group.

Ian, aged 7 months, joined the Group after Mary, 8 months, and her mother had been coming for some time. Ian's mother was severely depressed. She thought that every time he looked at her she had to smile, which led to rather fixed smiling on her part. In his first session, Ian's body tone was flaccid. He could not sit up and he looked like an infant who was depressed and flat. He did not look at the other infants or us very much, unless we were active in eliciting his gaze, or Mary was persistent in reaching out to touch him and vocalise to him. He often withdrew to hold or mouth a toy. His mother, who was very disengaged from him, shared her difficulties within the Group and the members put into words for her the feelings of anger within her depression and were supportive about this. The following week, Ian was a transformed child, he was sitting upright, and was more engaged with the Group leaders and Mary; he smiled, moved and vocalised with pleasure, and more clearly communicated what he wanted.

It seemed that the new experience of the Group and its interventions had promoted change for Ian and his mother. But the surprise is that the infant is so quickly aware of the potential offered in the new situation. For his first 45 seconds in the Group he had sat with his eyes locked onto mine. This is quite a long time for a depressed infant, and attracted comment by the other mothers. We think it is quite powerful for an infant to feel that he has succeeded in capturing another's gaze, particularly as in Ian's case his mother was either preoccupied or found it difficult to be authentic. Nor could Ian fail to be aware, almost immediately, of the response of the other infants. As soon as Mary saw him she reacted with pleasure, wriggling and trying to reach him and touch him. She then rolled over towards him and tried to hang onto him. The whole time she was really trying to make contact with him. But she also seemed to be aware of his lack of responsiveness and was perturbed by it. She kept looking at the leaders, almost as if she were asking, 'Why isn't he responding?' Gradually in the session he was able to look a little at her and the other toddler present.

Change came quickly for Ian, and there should be the possibility for parents and infants to consolidate over a longer period. One mother, on leaving the Group said, '12 months ago I didn't have any love for my daughter, it was like a duty. This was the only place I felt I got help. A lot of the time I felt terrible, I wanted to die, I wished she was dead, and I didn't feel courageous enough to say it. Sometimes everything seems so bad like you're drowning in the midst of chaos.' As the little girl's symptoms also resolved, she reached out in a very therapeutic way to the other infants in the group. This has been our experience generally of the infant-infant interaction in the Group.

In infant-parent psychotherapy sessions the child is part of the session. As Alicia Lieberman and Jeree Pawl (1993) pointed out, the therapist tries to work equidistant from the parents and the infant, she tries not to over-identify with one or the other. The infant, however young she is, is thought about and related to as a subject in her own right. What we think she is feeling and thinking we put into words to her parents and we try also to convey this to her and to relate to her on that basis. For the parents we try to help them understand why they are feeling the way they are, in the light of their own personal history. When we convey to the infant that we are thinking about her as someone with a mind that registers the emotional consequences of any impingement or interaction, not just as an object of investigation, the results can be quite dramatic. Sometimes when things seem particularly urgent for the family, or we sense that there is a difficulty in the parents' thinking, there might be an avenue through the child, so, we work a little more with the infant. The following is an example of this.

While Brenda, and her seven-month old son, Tom, had been in our Group for a number of weeks, we saw them on their own, just prior to a long break from therapy. With only mother and son present with Campbell Paul and myself, the intervention resembles the more usual setting of infant-parent psychotherapy (Paul & Thomson-Salo, 1997). Tom was an unsmiling boy who had held his arms out rigidly at right angles to his side, like scaffolding, for several weeks. He could neither move freely nor cuddle his mother and his development was impeded. We had tried working with the mother's representations for a number of weeks without change. The situation was therefore urgent for the infant and a short playful sequence with Campbell Paul helped undo this. His mother, Brenda, had lost her first child, a daughter, when she was a year old. In her anger about this, she had found it difficult to mourn her death. When she looked at Tom she saw her daughter's face and her relationship with him was not easy. She had never been able to play with him. When Campbell wiggled his own fingers, Tom watched them. Campbell then touched Tom's hands and talked to him. Gradually Tom could bring his own hands, which Campbell was still holding, to his own mouth and explore Campbell's thumb. Gradually his arms relaxed and, still holding Campbell's hands, he was able, for the first time, to bring his own hands together. As he did so, he smiled. His mother then, for the first time, played with him, smiling at him. In reviewing the videotapes it looked like there was a protective aspect of Tom's rigid arms, bracing himself as if frightened by the anger he could sense in his mother – he was not the child she grieved for so much. The sequence with Campbell helped change Tom's behaviour and representations, and as he stopped being so frightened, his mother could also change.

A link with Attention Deficit Hyperactivity Disorder?

I now want to go back to the question in the title, whether depressive symptomatology is one route to an ADHD type picture. Currently boys are 4 times more likely to be diagnosed as having ADHD than girls. It is usually hypothesised that an early neurological vulnerability is implicated. Let us try constructing another hypothesis, from an attachment perspective.

Discussion

Attachment difficulties predispose to attentional difficulties

When things go well for mother and infant, secure attachment develops with sensitive, responsive and consistent caregiving. As Don Seigal put it, '(H)uman connections shape the neural connections from which the mind emerges' (1999, p. 2).

What happens when things don't go well? Male infants seem, more than female infants do, to need their mother's help in regulating their emotional and physical states. When mother and infant are on a trajectory of difficulty, boys may be less likely to get the kind of help they need. There is often more negativity in the interactions of preoccupied and depressed mothers with their male infants, in both their tone of voice and the content of what they say (Murray et al, 1993). And maternal intrusiveness when infants were 6 months old more significantly predicted distractibility in early childhood, and hyperactivity in middle childhood than temperament or biological factors (Carlson, Jacobvitz and Sroufe, 1995).

When these difficult interactions are ongoing, male infants may start using the kind of hyperarousal mechanisms which Perry (Perry, 1995 a, 1995 b) suggested were adapted for evolutionary survival and particularly used by boys. By the child's second year he may be distractible because he is also inwardly preoccupied. So he may be both externally vigilant and internally preoccupied - with questions such as, 'Am I noticed? Am I lovable?' He will find it difficult to concentrate and also to be fully in control of his behaviour, and these states of inattention and impulsivity may gain him a diagnosis of ADHD.

Or he may attempt to push into his mother to get some kind of attention, feeling that any attention is better than none. However, the way he does it may defeat its purpose. He may be on a path to being seen as having an oppositional defiant disorder. Geraldine Dawson (1996) found in her study that most of the infants of depressed mothers began showing signs of angry and aggressive behaviour by the age of three. The co-morbidity of ADHD with other disorders is the rule rather than the exception, primarily with the disruptive disorders, and may at times be as high as 60% with conduct disorder.

It is possible, however, as I have outlined here, and Ingeborg Stiefel (1997) and George Halasz (2002) have explored more fully, to trace a different route from the genetic one of neurological vulnerability predisposing to ADHD, but rather one that implicates attachment difficulties. Leanne Clarke and her colleagues (2002) found in a controlled study of the quality of attachment representations in a group of 5-10-year-old boys with ADHD, that the attachment style was predominantly anxious-ambivalent or

disorganised. They argued that when insecure attachment relationships are found in children presenting with symptoms of ADHD, treatment must incorporate relationship-building components.

I now want to focus on what may be a depressive core at the heart of these difficulties. I will start with a suggestion of Eric Taylor and his colleagues (Taylor et al, 1991), arising out of an epidemiological study of ADHD in the United Kingdom. They described three types of ADHD, one of which is that of emotional symptoms such as anxiety and depression and they offered the suggestion that one route to ADHD might be through depressive symptomatology

A depressive core in attachment difficulties

The infant may have his own overwhelming distress or depression because of painful experiences or a separation from his mother that he found traumatic. Or a mother may bring her distress and depression into her interaction with her infant. If his mother is depressed the infant's own experience is likely to be one of depression. From what I referred to earlier it seems that when a mother is depressed the perception of that emotion is enough to trigger a comparable feeling of depression in the infant (Davidson & Fox, 1982; Field et al, 1995). I think that this can be traumatic for the infant both in the short term and in the longterm.

Where mothers or infants take these difficulties into their developing attachment to one another and there are few supports available for them, the attachment takes the strain. Where the mother for whatever reason cannot help her infant over his extreme distress or depression and this unresolved depression continues at the heart of his interaction with his mother, it will complicate the developing relationship for them. It seems likely that there would be a spiral of negatives reinforcing each other, with infants perceived as difficult and mothers responding negatively, with the infants becoming in turn more anxious and difficult and depressed.

If you remember, some of the symptoms of infant depression are those that may make it especially difficult to parent an infant, such as irritability, excessive whining, lack of pleasure and sometimes sleeping or eating difficulties. Studies of high-risk populations looking at emotional expression in the infants of mothers who are depressed, have found significantly higher levels of negative emotional expression compared to infants whose mothers are not depressed (Luby, 2000). Several groups of researchers have also shown that the infants of depressed mothers demonstrated more difficult temperamental features, in particular, greater difficulty in self-soothing and displaying more irritability (Luby, 2000). When the infant continually registers that his mother is preoccupied and unavailable there is mounting anxiety, predisposing to insecure attachment. Infants whose mothers are depressed are, by the time that they are one year old, significantly more likely to be insecurely attached to their mothers than securely attached.

Our understanding is that the child responds to feeling that he is not in his mother's mind and could therefore get lost, by feeling extremely threatened. If unrelieved this state can be traumatic. Perry and his colleagues (Perry et al, 1995, b) were struck by the resemblance of the symptoms of ADHD with the symptoms of what happens during trauma, such as the hypervigilance and the difficulty in being able to attend to anything other than the threat. To be in a continual state of stress increases the production of the stress hormone, cortisol. Over time this contributes to altering the structure and metabolism of the brain. An ADHD type picture may start developing and increasingly be accompanied by measurable neurological changes.

This could explain why there often looks like an overlap between the symptoms of PTSD and ADHD, where the trauma in the ADHD type picture has been overlooked. It may be comparatively easy on questioning to elicit an observable trauma in the child's developmental history. It may need quite a careful history-taking to uncover the infant's very early sadness with life. (Stiefel (1997) found that some parents of children referred for ADHD only revealed information about significant life stressors such as maternal grief and depression after some time when sufficient trust with the clinician was established.)

More research is needed. However, two studies can be mentioned here. Stephanie Kasen (2001) and her colleagues followed approximately 700 children and adolescents into their early 20s. The main finding was that childhood depression was a strong predictor of personality disorders in adult life including antisocial personality (which is linked with childhood conduct problems).

And research by Rutter and his colleagues (Roy et al, 2000) on the effects of care that is less individualised and sensitively contingent, is relevant here. Their study of pre-adolescents confirmed the high level of hyperactivity/inattentiveness found in so many children raised in institutions, compared with children who had been raised in their own homes. The researchers, in considering the effects of biological risk, nevertheless concluded that to a very considerable extent this pattern of hyperactivity/inattentiveness is likely to be a function of their rearing *rather than* their biological background. That is, that an ADHD type picture in the children studied was more likely to have been brought about by the kind of care they had received which was not sensitively adapted to their needs, rather than a genetic predisposition.

A number of young children aged between three and five years have been referred to clinicians with a query as to whether they have ADHD. It is striking how quickly their frenetic behaviour lessens once they feel they are being communicated with and taken seriously. The 2000 report of the Family Early Intervention Program in Perth, Western Australia, records that of the seventy children assessed that year, 'a significant number of children entered the program with a diagnosis of ADHD, or a suspicion of the diagnosis'. None of them, however, left the program with a diagnosis of ADHD (p.3). The changes in infants' behaviour and in the parent's capacity to understand the children's communications, as a result of intensive family and infant work, also led to increased pleasure in the relationship between the child and his parents.

* An 18-month-old boy, Craig, was referred to the program for aggressive behaviour and difficulties in concentrating and learning. As well as a suspected diagnosis of ADHD, the paediatrician who had seen Craig and his mother also considered a pervasive developmental disorder and/or intellectual impairment. However, the immediate response of the clinician who assessed him was the feeling, 'He is SO sad.' His young mother was depressed and overwhelmed with her role as Craig's mother. She was unsure of the future with her partner, Craig's father, who had a tendency to violence. Craig was an active boy, and his behaviour often escalated to 'wrecking the room' before his mother was aroused from her own depression and pre-occupation to attend to him. With the workers' attuning to the depression in the mother and in Craig and working with this, there were considerable changes in Craig and the hyperactivity lessened. His mother came to understand that his 'hyperactivity' did not mean that he hated her or would become violent toward her, like his father. His mother and father were helped to realise the tension and hostility between them *did* affect Craig and that he needed help to make sense of what was happening in his family. Craig responded well to being informed of what was happening around him.

With these children and their families, a psychotherapeutic intervention was the one that seemed to be the most helpful. At times the additional support of medication and other strategies as part of a comprehensive treatment approach will ensure the best outcome for the child and the family. There should be adequate time for assessment and to explore whether talking about feelings in addition to other treatment recommendations, would be helpful. This may seem time consuming and costly but, in the long run, is likely to be more beneficial for children, their families and society.

(* Footnote: I am indebted to Dr. Julie Stone and her colleagues at Family Early Intervention Program, Perth, for the vignette.)

Another reason why it is important that our interventions effect thorough change rather than acting as a psychic Band-Aid is the potential of *transgenerational transmission* of unresolved emotional difficulties. Where parents are unable to resolve their own emotional difficulties, the next generation, their children, often find themselves caught up too. Infants whose mothers had postnatal depression may, for example, find that their experience of this is triggered when they have their own infants and become depressed. Difficulties which are not attended to have the potential to create further difficulties throughout development and to be a vulnerability when that person becomes a parent themselves.

There is therefore, a strong case for early intervention when *the infant begins showing symptoms of distress,* particularly if this is linked with physical deterioration - we have to act quickly. Otherwise, the resulting pathology can be very profound, and extremely difficult to treat later on. Even severe pathology can, however, be treated very quickly if this is undertaken sufficiently early.

Margaret Arden, a British psychoanalyst, wrote in 1998 that, 'some belief in oneself is necessary in order to work through depression.' But before an infant can do this he has to have a foundation for himself. In the first weeks of his life he is using his experience of his mother and father to build up his

sense of himself. He is using this experience for the very building blocks of his personality. Where his sense of self is being built out of depressed interactions between himself and his parents, early intervention should be considered. In Australia there is a work-safety advertisement about the 'accidental heroes.' It says, 'When all else is lost,…the future remains.' For the infant the future is now, second by second, and for a depressed infant, that is very hard.

Where the attachment system is built around a depressive core, this must skew the attachment. Returning to the quotation of Yeats' at the beginning of this chapter, that 'the centre cannot hold' I suggest that this may well lead to a child who is restless and cannot concentrate as he is inwardly preoccupied with this. It so very often earns him the diagnosis of ADHD whereas he and his family might be better helped with a psychotherapeutic input into the totality of their attachment needs.

References

Abrams S., Field, T., Scafidi, F., & Prodromidis, M. (1995). Newborns of Depressed mothers. *Infant Mental Health Journal*, 16; 233-9.

American Psychiatric Association (1994) *Diagnostic and Statistical Manual of Mental Disorders,* Fourth Edition (DSM-4), American Psychiatric Association, Washington DC.

Arden, M. (1998) *Midwifery of the soul. Perspectives on Psychoanalysis*. Free Association Books.

Carlson, E.A., Jacobvitz, D., & Sroufe, L.A. (1995). A developmental investigation of inattentiveness and hyperactivity. Child Development, 66: 37-54.

Clarke, L., Ungerer, J., Chahoud, J., Johnson, S. & Stiefel, I. (2002), Attention deficit hyperactivity Disorder is associated with Attachment insecurity. Clinical Child psychology and Psychiatry, 7: 179-198.

Davidson, RJ and Fox, N. A. (1982). Asymmetrical brain activity discriminates between positive and negative affective stimuli in human infants. *Science,* 218: 1235-1237.

Dawson, G. (1996). Paper given at 'Brain Development in Young Children' conference, University of Chicago.

Directorate of Psychological Medicine. (2000*). Family Early Intervention Program: The Year in Review 2000*. Princess Margaret Hospital for Children, Perth WA.

Field, T., Fox, N. A., Pickens, J., & Nawrocki, T. (1995). Relative right frontal EEG activation in three- to six-months-old infants of "depressed" mothers. *Developmental Psychology*, 31: 358-363.

Family Early Intervention Program Report (2000). The Year in Review 2000. Department Psychological Medicine, Princess Margaret Hospital.

Freeman, W. J. (1995). *Societies of brains*. Mahwah, NJ: Lawrence Erlbaum.

Halasz, G. (2002).Chapter in this book.

Karr-Morse, R. & Wiley, M. (1997*) Ghosts from the nursery: tracing the roots of violence. New York*: The Atlantic Monthly Press.

Kasen S., Cohen, P., Skodol, A., Johnson, J., Smailes, E., and Brook, J. (2001). Childhood Depression and Adult Personlaity Disorder. Arcg. Gen. Psychiatry. 58: 231—236.

Lieberman, A. and Pawl, J. (1993) Infant-Parent Psychotherapy. In Zeanah, C. (ed.) *Handbook of Infant Mental Health* London/New York: Guilford Press, pp. 427-442.

Luby, J. Depression. In Zeanah, C. (ed.) *Handbook of Infant Mental Health, Second edition.* London/New York: Guilford Press, pp. 382-396.

Murray, L., Kempton, C., Woolgar , M. & Hooper , R. (1993). Depressed mothers' speech to their infants and its relation to infant gender and cognitive development. *Journal of Child Psychology and Psychiatry*, 34: 1083-1101.

Murray, L. (1997). The early mother-infant relationship and child development: a research perspective. *Infant Observation. The International Journal of Infant Observation and its applications.* Vol.1: 80-92.

Paul, C. & Thomson-Salo, F. (1997) Infant-led innovations in a mother-baby therapy group. *Journal of Child Psychotherapy, 23: 219-244*.

Perry B. D. (1995a). *Maltreated children, experience, brain development, and the next generation*. New York: Norton.

Perry B. et al. (1995b). Childhood trauma, the neurobiology of adaptation, and "Use-Dependent" development of the brain: How "States" become "Traits". *Journal of Infant Mental Health*, Vol. 16: 271-91.

Pianta, R., Egeland, B., & Erickson, M. (1989). The antecedents of maltreatment: results of the mother-child interaction research project. In D. Cicchetti & V. Carlson (Eds.*). Child maltreatment: Theory and research on the causes and consequences child abuse and neglect* (pp203-253) New York: Cambridge University Press.

Roy, P., Rutter, M. & Pickles, A. (2000) Institutional care: risk from family background or pattern of rearing? *J. Child Psychol. Psychiat*. Vol 41: 139-149.

Seigal, D. J. (1999) *The developing mind. Towards a neurobiology of interpersonal experience*. New York: Guilford Press.

Sroufe, L. A. (2000). Early relationships and the development of children. *Infant Mental Health Journal,* Vol 21: 67-74.

Stiefel, I. (1997) Can Disturbance in Attachment Contribute to Attention Deficit Hyperactivity Disorder? A Case Discussion. *Clinical Child Psychology and Psychiatry*, Vol 2: 45-64.

Taylor, E., Sandberg , S., Thorley, G. and Giles, S (1991). *The Epidemiology of Childhood Hyper-activity.* Oxford: Oxford University Press.

Thomson-Salo, F., Re, J and Wraith, R. (eds.) (2001). *Childhood depression. Why is it hard to understand*? Child Psychotherapy Department, Royal Children's Hospital, Melbourne.

World Health Organisation *(1992)* ICD-10: *The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines*. World Health Organization, Geneva.

Yeats, W. B. (1967). The Second Coming. In *The Collected Poems of W. B. Yeats,* London/Melbourne/Toronto, Macmillan: p. 210.

Zero to Three. (1994). *Diagnostic classification: 0-3: Diagnostic classification of mental health and developmental disorders of infancy and early childhood*. Washington, DC: Author.