# Brain-based discourses and early intervention: a critical debate for health visiting

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# A critical debate for health visiting

**Abstract:**

Neuroscientific discourses about early brain development and its plasticity have placed considerable importance upon parenting, emotional nurturing and attachment during the first 1001 'Critical Days'. This has informed a policy shift towards early intervention in the early years, and is shaping public health practice in this field particularly health visiting. This paper reviews these developments and outlines a critical debate that has been taking place amongst commentators concerned with how these brain based discourses are being applied in policy. Concerns include the policy readiness of the science, the focus upon parenting quality rather than contextual issues such as poverty, and that these developments are creating a new form of governance of families. In contrast these concerns have not been debated within health visiting raising questions about the profession's engagement with evidence and policy.

**Keywords:**

early brain development; parenting; health visiting; early intervention; evidence

**3594 words**

**Key points**

- Emerging knowledge from neuroscience -which links early brain development to later cognitive and emotional development - highlight the importance of the first 3 years of a child's life.
- These neuroscientific discourses are having an influential impact upon early years policy and practice.
- Some critical commentators are concerned with how these brain based discourses are being applied in policy.
- To date the health visiting profession appears to have uncritically adopted these discourses.
- The role of health visiting and its engagement with wider critical perspectives in policy and politics and social science is discussed.

**Reflective questions**

- How has emerging knowledge from neuroscience about early brain development impacted upon your practice?
- How can health visitors ensure they are delivering evidence based messages in their work with parents?
- Do health visitors need to adopt a more critical attitude towards policy developments?

## Introduction

Over the last decade in the United Kingdom the importance of the first 1001 'Critical Days' in a child's life has become a key public health issue (All Party Parliamentary Group, 2015; Department of Education and WAVE Trust, 2013). This shift towards the early years has been influenced by developments in neuroscience which have pointed to the plasticity of the infants brain, linking early experiences to later cognitive and emotional development (Nelson, Furtado, Fox & Zeanah, 2009; Parsons, Young, Murray, Stein & Kringelbach, 2010; Schore, 2001). These brain based discourses now inform much policy and practice in this field where the emphasis is upon supporting parenting, emotional nurturing and attachment during the first 3 years of a child's life (see for example Department of Health, 2009; Public Health England, 2017).

The purpose of this paper is to raise some critical questions about these developments. There has been an almost paradigmatic shift towards early intervention in the first 1001 critical days with little questioning within the health visiting profession about the evidence underpinning this or its implications for working with parents. In contrast, a robust debate is being conducted by social work and social science academics concerned about how brain-based discourses are being translated into policy messages about early intervention and parenting (Gillies, Edwards & Horsley, 2017; Wastell & White, 2017). These issues are discussed in this paper which commences with an overview of policy and practice developments which draw upon brain-based discourses. .

**Brain based discourses and health visiting: policy and practice**

Although brain-based discourses -which explicitly link brain science claims to early years policy and practice – emerged in the USA in the 1990s (Bruer, 1999; Thornton, 2011) they really took hold in the UK following the publication of two influential reports concerned with early intervention (Allen, 2011; Allen & Duncan Smith, 2008). These emphasised how the mother's emotional health and parenting skills in the first 3 years of life impacts upon the growing brain leading to life long consequences for both the child and society. Links between poor parenting and future problems such as criminal behaviour and low educational attainment were stressed. A cross party political agenda emerged - led by the reports' authors Graham Allen MP and Iain Duncan Smith MP – with subsequent developments including the establishment of the Early Intervention Foundation, a cross party manifesto emphasising the importance of the first 1001 critical days and a number of reports all reiterating the links between infant brain development and early parenting (All Party Parliamentary Group, 2015; Department of Education & WAVE Trust, 2013; Moullin, Waldfogel & Washbrook 2014; The 1001 Critical Days Campaign, 2014). The important role of brain based discourses is clearly evident throughout these developments. As MP Tim Loughton stated in the Foreword of the 'Building Great Britons' report tackling the problem of perinatal mental health and child maltreatment ' ….is not *rocket science.* Technically it is *neuro-science'* (All Party Parliamentary Group, 2015, p. 3, italics in original).

Brain-based discourses now also inform a range of child health policy documents as illustrated for example by these statements from the Chief Medical Officer's report (2013) and the Healthy Child Programme (Department of Health, 2009).

> *The evidence base clearly identifies that* ***events that occur in early life (indeed in fetal life) affect health and wellbeing in later life****. Whether this is through changes in genetic expression, how the brain is formed or emotional development, we increasingly understand that what happens in these years lays down the building blocks for the future.* ***This is particularly the case at times of rapid brain growth in the early years (i.e. from birth to 2 years) and adolescence*** **(**Chief Medical Officer, 20133, bold in original).

> *A child's brain develops rapidly in the first two years of life, and is influenced by the emotional and physical environment as well as by genetic factors. Early interactions directly affect the way the brain is wired, and early relationships set the 'thermostat' for later control of the stress response* (Department of Health, 200911).

These messages are also reiterated in the recently published Health for All Children (Emond 2019) which states,

> *'Pregnancy and the first years of life are when the foundations of future health and well-being are laid down. ….. Increasing strength of evidence about the*

*sensitivity and plasticity of the developing brain, the impact of stress in pregnancy, and the importance of attachment in determining the quality of relationships throughout life, all make prevention and early intervention an imperative ….'* (Emond 2019: 3).

Thus the work of health visitors - who have a public health role concerned with supporting parents with babies and young children - is also now heavily influenced by brain based discourses. For example in delivering the Healthy Child Programme to under-5s health visitors emphasise the importance of supporting attachment and positive parenting in the first years of life (Department of Health, 2009). The current service model for health visiting (Public Health England, 2016), informed by the first 1001 critical days cross party manifesto (The 1001 Critical Days Campaign, 2014) requires health visitors to undertake a range of work to promote attachment and good parenting. The topics of attachment, parenting and neuroscience are listed as recommended key content for health visiting courses (DH, 2011b) and interest in these is widely reflected in health visiting literature (Appleton, Harris, Oates & Kelly, 2013; Chitty 2015; Lee & Mee, 2015; McAtanmey, 2011; Finistrella & Lavis 2014; Cameron & Shepherd 2018).

Chitty (2015), for example, describes health visitors' involvement in activities designed to promote secure attachment relationships between infants and their primary carers. This initiative provided all new parents with a baby booklet designed to help them establish sensitive and attuned parenting in the early weeks and months of a child's life. Health visitors also received additional training about infant

neurodevelopment, attachment theory and how to support caregivers in understanding their babies. As Chitty (2015) explains the purpose of this is to help practitioners

> *appreciate the importance of focussing on infant states and cues when supporting parents/carers to be attuned, sensitive and responsive in their caregiving. In turn this promotes secure attachment relationships with a positive impact on their babies' brain development and consequent healthier emotional and mental health outcomes* (Chitty, 201529).

Lee and Mee (2015) describe a similar initiative to promote sensitive and responsive early parenting and infant communication. The knowledge and skills of health visitors in assessing and supporting parent- infant relationships is the focus of small studies reported by McAtanmey (2011) and Appleton et al.(2013).

This shift in policy and practice towards working with infants drawing upon brain based discourses is also reflected in the popularity of psychological interventions and approaches in which many health visitors are now being trained the Solihull Approach (Douglas & Ginty, 2001), the Brazelton Scales (Brazleton & Nugent, 1995) and the Parent-Infant Interaction Observation Scale (Svanberg & Barlow, 2013).

**Critical Voices in the Neuroscience debate**

Whilst it is clear that the claims of neuroscience about babies' brains and the importance of the first three years has led to a distinctly psychological policy turn shaping professional practice, a growing body of critical scholarship is raising important questions about these developments (see for example Edwards, Gillies & Horsley 2015, 2016; Featherstone, Morris & White 2013; Gillies et al, 2017; Lee, Bristow, Faircloth & Macvarish, 2014; Macvarish, Lee & Lowe, 2015a, 2015b; Wastell & White, 2012; 2017). The critiques focus upon three key themes; the lack of policy readiness of the science; it's role in drawing attention towards parenting rather than other areas of social policy; and the implications for the governance of families. As Macvarish and colleagues explain what is of concern here is not '*the legitimate findings emerging from this new area of science'* but what they refer to as '*the fetishisation of a neuroscientific vocabulary as a source of authority to underpin policy claims-making'* (Macvarish et al., 2015b: 254 ).

Wastell and White (2012) argue that this 'science' - albeit fetisihised - is persuasive for policy makers providing them with simple causal explanations about socially and morally complex problems. They consider neuroscientific knowledge - which links 'the quality of parenting to the architecture of children's brains' (Edwards et al, 2015: 168) - is currently at a provisional stage and not ready to be translated into policy about parenting and childcare. This is because many of the claims come from animal based research and may not be directly transferable to human infants (Bruer 1999; Wastell & White, 2012). Wastell & White (2012) are particularly sceptical of the notion prevalent in these policy documents of a 'critical period' in the early years questioning the view that the plasticity of the brain ceases after the first few years. They point to the work of Bruer (1999), an early critic in this field, who

contested both the uniqueness of the first three years as a time of rapid and unique development of synapses in the brain, and the implied link between brain synapses and brain functioning. The idea that optimal infant brain development requires an enriched environment is also misleading and not scientifically supported (Bruer 1999; Wastell & White, 2012).

Critics are also concerned about how these neuroscientific discourses draw attention towards the quality of parenting - particularly in the first 3 years - causally linking this to a range of future social problems such as poverty, educational attainment, criminality, mental health and anti-social behaviour (Macvarish et al., 2015b). As many commentators have pointed out this has led to an intensification of the scrutiny of parenting focused particularly upon marginalized families (Edwards et al., 2015; Featherstone et al.,2013; Grover & Mason, 2013; Lowe, Lee & Macvarish, 2015a, 2015b; Macvarish et al., 2015a, 2015b; Wastell & White, 2012). It also deflects attention away from other policy approaches that may improve the context in which parenting takes place such as reducing poverty or providing suitable housing (Lowe et al., 2015a). There is also concern that neuroscientific discourses which emphasise the importance of growing and nurturing babies brains may also make parents feel anxious about the adequacy of their parenting practices (Wall, 2010).

Critics are also concerned these brain based claims are changing the relationship between the government and families, and creating new ways to monitor and judge family life. Macvarish et al. (2015b: 252) argues a shift has taken place

> *in English family policy where governmental concern for private life was reconceptualised from a moral concern for the outer form of 'the family' and the problematisation of people who defied that form (single mothers or same-sex parents for example), to a concern with the inner qualities of the parent–child relationship* (Macvarish *et al.*,2015b252).

Similarly Wastell & White (2012) consider the utilization of brain-based discourses to be '*part of a longer-term project of moral regulation'* (Wastell & White 2012: 408). This line of argument constructs the deployment of neuroscience in 21st century policy as a new form of 'governance' of the private domain of the family. As Faircloth (2010) explains

> *'a wealth of agencies with an interest in parenting- from policy makers and 'experts' to groups of parents themselves – now have a language by which to make what might better be termed moral judgements about appropriate childcare practices'* (Faircloth 2010: 10).

There are parallels here to earlier debates about how the state sought to 'govern' families and particularly mothers drawing upon psychological and other knowledge to regulate behavior and instill norms relating to parental conduct and family life (Broer & Pickersgill, 2015; Rose & Abi-Rached, 2013). Central to these debates was the role of professionals who worked with children and families such as social workers and health visitors (see for example, Davies 1988; Bloor & McIntosh, 1990; Parton 1991).

**A Silence in Health Visiting**

The critical debate about neuroscience and early intervention outlined above appears not to have reached the professional or academic world of health visiting. A citation search of all the critical literature discussed above found none of these were referred to or cited in any published nursing or health visiting literature. Although this is somewhat surprising given the breadth and robustness of the critiques of neuroscience and its application to early years policy it is acknowledged that these critiques are taking place in a largely academic bounded world not easily accessible to busy practitioners. However as illustrated below there is some evidence to suggest this debate has reached the professional and academic health visiting world and that neuroscientific discourses about early brain development have been somewhat uncritically accepted within the health visiting profession.

In 2014 two articles appeared in the British newspaper *The Guardian* (Butler, 2014; Williams, 2014) reporting this critical debate. The piece by Williams (2014) provides an overview of how brain-based discourses are being used to justify state intervention in the lives of (poor) children. Butler (2014) reported the visit of Dr Bruce Perry to a UK event organized by the Early Intervention Foundation and attended by an influential cross-party mix of MPs and policy makers. His message was paraphrased by Butler

> *Reach children early, through parenting classes and other "individualised intervention plans", before their brains are irrevocably hardwired – and you*

> *not merely rescue the child from disaster but you, the taxpayer, will save billions in social security payments* (Butler, 2014).

Whilst observing the seductive potential of this argument for policy makers Butler (2014) also outlines the concerns of critics; that neuroscientific claims have been given a privileged position within the hierarchy of knowledge that informs policy making; they are being used to underpin an overly critical and unforgiving agenda focused upon early parenting; they are deterministic and do not consider the wider material or economic context in which parenting takes place.

These pieces in *The Guardian* will have had a broader reach than the critical debate published in the academic press and discussed earlier. Indeed an editorial in *The Journal of Health Visiting* commented upon the unhelpful nature of the *The Guardian* articles (Butler, 2014; Williams, 2014) arguing that '*.... condemning an entire area of knowledge as misleading may be dangerous if it undermines important health promotion messages'* (Murphy, 2014). This suggests that the promotion of a positive message about '*supporting parents to care for their children as best they can'* takes precedence over engaging with critical concerns about inflated science or targeting poor parents. Indeed a pragmatic approach to the issue is evident for as Murphy (2014) states – in reference to Bruce Perry's thesis (Butler, 2014), *'It may not be bulletproof, but that doesn't make it worthless'.* Indeed for a professional audience it may be that the strength of the neuroscience claims really lie in their persuasive power to encourage policymakers to invest in early years services that address infant mental health such as health visiting.

Uncritical adoption of the claims of neuroscience is also reflected by the practitioners who took part in the 'Brain Science and Early Intervention' study reported above (Edwards et al, 2015, 2016). In a reflective paper Horsley, Gillies and Edwards (2017) discuss some of the challenges they faced as critical researchers in undertaking the fieldwork for this project. Their interviews with practitioners – who included health visitors, Family Nurse Partnership and Children's Centre staff – provoked some discomfort because of the sincere commitment they displayed towards the claims of brain science and how they drew upon it in their work with the early years. As they explain,

> *our heightened awareness of participants' reluctance to criticise the evidence base did not result in more critical interviews. It seemed to be the case that interviewees were not supplying us with 'what we wanted to hear' effected by some faulty methodological device, they were telling us how they genuinely felt based on their knowledge and experience. We had opened up a critical space but they could not step into it. A biologised approach to parenting was seen to serve both their needs as practitioners and those of their clients as struggling parents. This belief was strongly held and expressed to us not because we had unwittingly colluded in this agenda and underplayed the critical but because our participants rejected the idea of critique* (Horsley et al., 2017112).

This observation that practitioners were sincerely committed to the policy and did not step into the critical space offered by the researchers is insightful and is further evidence of the uncritical adoption by health visitors of the first three years movement and the associated brain claims that underpin it.

So why this absence of critical debate or questioning within health visiting about the evidence underpinning early intervention or its implications for working with parents? Evidence based practice is a professional requirement for health visiting and a key attribute of practice (Nursing and Midwifery Council, 2018; Institute of Health Visiting et al 2019) and considerable scholarly activity has been focused upon advancing the profession through evidence and theory (Cowley, et al., 2013). However health visiting has a relatively weak position in the academic world (Peckover, 2013) and with rare exceptions (see for example Condon, 2008; Greenway, Dieppe, Entwistle & Meulen 2008) contemporary scholarship has displayed little curiosity about the profession's relationship to policy and/or politics. This may help explain the profession's limited engagement with critical perspectives from other fields such as the social sciences. An earlier debate about home visiting provides an exemplar for this. Universal home visiting is a core feature of health visiting work (Cowley et al., 2013) enabling health visitors to cross into the private domain of the family and work to improve infant and child health. As Davies (1988) argued this was achieved because health visitors were able to become 'mothers friend' and the apparent nature of the informal support they offered disguised the surveillance and state intervention that was taking place. These critical arguments about the health visiting role and particularly home visiting have been well rehearsed (see for example Abbott & Sapsford, 1990; Bloor & McIntosh, 1990; Dingwall &

Robinson, 1993, Peckover, 2002) but as Peckover & Aston (2018) have written largely ignored in the professional literature which has taken a more normative view of health visiting work with families.

This strand of argument has continued resonance and is being played out again in the current orientation towards early intervention discussed in this paper. Brain based discourses are drawing attention to parenting and the parent-infant relationship and, as Macvarish et al. (2015b) have argued, are creating a new form of governance of families. The lack of debate about health visiting's role in this raises important issues about the profession's engagement with policy and politics. It may reflect a wider trend in nursing where critical debate or review of policy is lacking. This has been highlighted by Cheek and Gibson (1997) who, although writing many years ago argue that nursing literature is mainly focused upon the development, implementation or benefits of policy - and *'thus take for granted the benign or neutral status of policy'* (Cheek & Gibson, 1997p. 671). They argue for a critical approach to policy analysis - in order to understand how policy conveys dominant discourses and how it constructs and shapes professional practice. This view is also supported by Evans-Agnew, Johnson, Liu, & Boutain (2016) who suggest that techniques such as Critical Discourse Analysis provide a useful means for researching policy that impacts upon health care and nursing.

Both Cheek and Gibson (1997) and Evans-Agnew *et al.* (2016) are drawing upon social science perspectives and their calls for a greater critical engagement and analysis with policy reflect the gap between different fields of knowledge generation and engagement in health and social care. There is a need for the health visiting

profession to have a more critical understanding of these developments in neuroscience and early intervention and to locate these within the wider policy and political context which is currently shaped by fiscal austerity, and a changing landscape of welfare provision and role of the state in relation to families and parenting. However as Peckover has argued the relationship between the health visting profession and policy is somewhat malleable

> *Health visiting has remained a key and a universal service within the British welfare state. This may be because health visiting always meets a central policy objective whether that is concerned with child protection, early intervention or public health. Indeed, the lack of certainty or meta-narrative about health visiting may itself be a strength, enabling the profession to adapt itself in response to policy and practice developments* (Peckover, 2013 123).

**Conclusion**

The claims of neuroscience about attachment and the plasticity of the brain have been translated into a powerful policy drive that emphasises early intervention focused upon parenting and the early years. These developments have impacted upon health visiting and a shift in policy and practice towards working with infants drawing upon brain based discourses is evident. Whilst a number of critical commentators question the neuroscientific evidence and how it is being applied to policy concerned with children and families there has been little questioning along these lines in health visiting. Indeed the claims of neuroscience appear to have been taken for granted.

Maybe the seductive nature of the 'science' has obscured the need for debate. As Featherstone et al. (2013) state

> *…. the absence of critical scrutiny is amplified because the idea of child-centred early intervention carries such an overwhelming a priori correctness. Who could possibly disagree?* (Featherstone et al. 2013).

This may in the end be the reason for the acceptance of these brain based discourses in contemporary health visiting. However questioning why this is happening is important and one this paper has endeavoured to address in order to stimulate further debate in this field.

**References**


Abbott P. & Sapsford R. Health visiting: Policing the family? In P. Abbott & C. Wallace (Eds.) The Sociology of the Caring Professions (pp. 120-152). Basingstoke: The Falmer Press. 1990.

All Party Parliamentary Group. Building Great Britons. Conception to age 2: First 1001 days. All Party Parliamentary Group. 2015. www.basw.co.uk/system/files/resources/basw_53231-3_0.pdf (accessed 22 January 2019).

Allen G. Early intervention: The next steps. An Independent Report to Her Majesty's Government. London: Cabinet Office. 2011.

.https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/284086/early-intervention-next-steps2.pdf accessed 22 January 2019)

Allen G. & Duncan Smith I. Early Intervention: Good Parents Great Kids Better Citizens. London: Centre for Social Justice and the Smith Institute. 2008.

Appleton JV Harris M Oates J & Kelly C. Evaluating health visitor assessments of mother–infant interactions: a mixed methods study. International Journal of Nursing Studies. 2013: 50(1): 5-15. https://doi.org/10.1016/j.ijnurstu.2012.08.008

Bloor M. & McIntosh J. Surveillance and concealment: a comparison of techniques of client resistance in therapeutic communities and health visiting. In Cunningham-Burley S & McKegany N. P. (Eds.) Readings in Medical Sociology (pp.159-182). London: Tavistock/Routledge. 1990.

Brazelton TB & Nugent JK. Neonatal Behavioural Assessment Scale. London: MacKeith Press. 1995.

Broer T & Pickersgill M. Targeting brains producing responsibilities: the use of neuroscience within British social policy. Social Science and Medicine. 2015: 132: 54-61. https://doi.org/10.1016/j.socscimed.2015.03.022

Butler P. Policymakers seduced by neuroscience to justify early intervention agenda. The Guardian. 2014: May 6th. https://www.theguardian.com

Bruer JT. The Myth of the First Three Years: A New Understanding of Early Brain Development and Lifelong Learning. New York: Simon & Schuster. 1999

Cameron J & Shepherd A L. Evaluation of outcomes from an evidence-based programme for mothers and babies. Journal of Health Visiting. 2018: 6:(10): 499-505. https://doi.org/10.12968/johv.2018.6.10.499

Cheek J & Gibson T. Policy matters: critical policy analysis and nursing. Journal of Advanced Nursing 1997: 25: 668–672. https://doi.org/10.1046/j.1365-2648.1997.1997025668.x

Chief Medical Officer Our Children Deserve Better: Prevention Pays. Annual Report of the Chief Medical Officer for 2012. 2013. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/255237/2901304_CMO_complete_low_res_accessible.pdf

Chitty A. Infant mental health: health visitors as key partners. Community Practitioner 2015: 88(10): 29-30.

Condon L. Child health promotion in the United Kingdom: does health visitors' practice follow policy? Journal of Advanced Nursing. 2008: 62(5): 551-561. **https://doi.org/10.1111/j.1365-2648.2008.04627.x**

Cowley S Whittaker K Grigulis A et al (2013) Why health visiting? A review of the literature about key health visitor interventions processes and out- comes for children and families. www.kcl.ac.uk/nursing/research/nnru/ publications (accessed 22 January 2019).

Cowley S. Developing a coherent body of knowledge for health visiting. Journal of Health Visiting. 2013: 1(1): 66. https://doi.org/10.12968/johv.2013.1.1.66

Davies C. The health visitor as mothers friend: a womans place in public health 1900-1914**.** Social History of Medicine. 1988: 1: 39-60. https://doi.org/10.1093/shm/1.1.39

Department for Education and Wave Trust. Conception to age 2 – the age of opportunity. Addendum to the Government's vision for the Foundation year:

‘Supporting Families in the Foundation Years’. London: Wave Trust and Department for Education. 2013.

Department of Health and Department for Children Schools and Families. The Healthy Child Programme: Pregnancy and the first five years of life. London: Department of Health. 2009.

Department of Health. Health Visitor Implementation Plan 2011–15. A call to action.2011a. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215452/dh_129695.pdf

Department of Health. Educating health visitors for a transformed service. 2011b. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215452/dh_129695.pdf

Dingwall R. & Robinson K.M. Policing the family? Health visiting and the public surveillance of private behaviour. In Beattie A. Gott M. Jones L. & Sidell M. (Eds.) Health and Wellbeing: A Reader (pp. 253-273). Basingstoke: McMillan. 1993.

Douglas H & Ginty M. Solihull Approach: changes in Health Visiting Practice. Community Practitioner. 2001: 74(6): 2-4.

Edwards R, Gillies V & Horsley N. Brain science and early years policy: Hopeful ethos or ‘cruel optimism’? Critical Social Policy. 2015: 35(2): 167-187. https://doi.org/10.1177/0261018315574020

Edwards R, Gillies V & Horsley N. Early intervention and evidence-based policy and practice: framing and taming. Social Policy and Society. 2016: 15 (1): 1-10. 10.1017/S1474746415000081

Emond A. ‘Health for all children: philosophy and principles’. In Emond A. (ed) Health for all Children. Oxford: Oxford University Press. 2019. p 3-8.

Evans-Agnew RA, Johnson S, Liu F & Boutain DM. Applying Critical Discourse Analysis in Health Policy Research: Case Studies in Regional Organizational and Global Health. Policy Politics & Nursing Practice. 2016: 17(3): 136-146. https://doi.org/10.1177/1527154416669355

Faircloth C. ‘What science says is best’: parenting practices scientific authority and maternal identity. Sociological Research Online. 2010. 15(4): 1-14. https://doi.org/10.5153/sro.2175

Featherstone B, Morris K and White. S. A Marriage made in hell: Early intervention meets child protection. British Journal of Social Work. 2013:10(1):1-15. https://doi.org/10.1093/bjsw/bct052

Finistrella V & Lavis P. Babies in mind: promoting infant mental health. Journal of Health Visiting. 2014: 2(8): 424-432.

Gillies.V, Edwards. R & Horsley N. Challenging the politics of early intervention: who’s ‘saving’ children and why. Bristol: Policy Press. 2017.

Greenway J, Dieppe P, Entwistle V & Meulen R. “‘Facing the future’: the government’s real agenda for health visitors” Community Practitioner. 2008: 81(11): 29-32.

Grover C & Mason C. The Allen Report: class gender and disadvantage. Families Relationships and Societies. 2013: 2(3): 355-369. https://doi.org/10.1332/204674313X669829

Horsley N, Gillies V & Edwards R. Researchers' reflections on interviewing policy makers and practitioners: Feeling conflicted in critical research. Women's Studies International Forum. 2017: 61: 108-114. doi:10.1016/j.wsif.2016.07.001

Institute of Health Visiting. Recommended national curriculum Specialist Community Public Health Nursing Health visiting/school nursing (0-19 child public health nursing services). 2019. https://ihv.org.uk/our-work/education/recommended-national-curriculum/

Lee E, Bristow J, Faircloth C & Macvarish J. Parenting Culture Studies. Palgrave Macmillan: Basingstoke. 2014.

Lee P & Mee C. The Tameside and Glossop early attachment service: meeting the emotional needs of parents and their babies. Community Practitioner. 2015: 88(8): 31-35.

Lowe P, Lee E & Macvarish J. Biologising parenting: neuroscience discourse English social and public health policy and understandings of the child. Sociology of Health and Illness. 2015a: 37(2): 198-2011. **https://doi.org/10.1111/1467-9566.12223**

Lowe P, Lee E & Macvarish J. Growing better brains? Pregnancy and neuroscience discourses in English social and welfare policies. Health risk & society. 2015b: 17(1): 15-29. https://doi.org/10.1080/13698575.2014.994479

Macvarish J, Lee E & Lowe P. 'The 'First Three Years' Movement and the Infant Brain: A Review of Critiques'. Sociology Compass. 2015a: 8(6): 792–804. **https://doi.org/10.1111/soc4.12183**

Macvarish J, Lee E & Lowe P. Neuroscience and family policy: What becomes of the parent? Critical Social Policy. 2015b: 35(2): 248-269. https://doi.org/10.1177/0261018315574019

McAtanmey R. Health visitors' perceptions of their role in assessing parent-infant relationships. Community Practitioner. 2011: 84(8): 33-37.

Moullin S, Waldfogel J & Washbrook E Baby Bonds: Parenting Attachment and a Secure Base for Children. 2014. https://www.suttontrust.com/wp-content/uploads/2014/03/baby-bonds-final-1.pdf

Murphy M. Anti-neuroscience articles send the wrong message. Journal of Health Visiting. 2014: 2(5): 237.

Nelson CA, Furtado EA, Fox NA & Zeanah CH. The deprived human brain. American Scientist . 2009: 97: 22–229.

Nursing and Midwifery Council (2018) The Code. www.nmc.org.uk/standards/code/ (accessed 25 January 2019).

Parsons C, Young K, Murray L, Stein A, and Kringelbach M. The functional neuroanatomy of the evolving parent-infant relationship. Progress in Neurobiology. 2010: 91: 220-241. https://doi.org/10.1016/j.pneurobio.2010.03.001

Parton N. Governing the family: child care, child protection and the state. London: Macmillan.1991.

Peckover S. Supporting and policing mothers: An analysis of the disciplinary practices of health visiting. Journal of Advanced Nursing. 2002: 38(4):369-77. https://doi.org/10.1046/j.1365-2648.2002.02197.x

Peckover S. From ‘public health’ to ‘safeguarding children’: British health visiting in policy practice and research. Children and Society. 2013;27(2):116-126. https://doi.org/10.1111/j.1099-0860.2011.00370.x

Peckover S & Aston M. Examining the social construction of surveillance: A critical issue for health visitors and public health nurses working with mothers and children. Journal of Clinical Nursing. 2018: 27:e379–e389. **https://doi.org/10.1111/jocn.14014**

Public Health England. Best start in life and beyond: improving public health outcomes for children young people and families. Guidance to support the commissioning of the Healthy Child Programme 0-19: Health Visiting and School Nursing services. London: Public Health England. 2016.

Public Health England (2017). Healthy beginnings: applying All Our Health. 2017. https://www.gov.uk/government/publications/healthy-beginnings-applying-all-our-health

Rose N & Abi-Rached JM. Neuro: the new brain sciences and the management of the mind. Princeton NJ: Princeton University Press. 2013.

Schore A. The effects of early relational trauma on right brain development affect regulation and infant mental health. Infant Mental Health Journal. 2001: 22: 201-269. **https://doi.org/10.1002/1097-0355(200101/04)22:1<201::AID-IMHJ8>3.0.CO;2-9**

Svanberg PO & Barlow J. The effectiveness of training in the Parent-Infant Interaction Observation Scale for health visitors. Journal of Health Visiting. 2013: 1(3): 162-166. https://doi.org/10.12968/johv.2013.1.3.162

Thornton DJ. Brain Culture: Neuroscience and Popular Media. New Brunswick NJ: Rutgers University Press. 2011.

The 1001 Critical Days Campaign. The 1001 Critical Days. The importance of the Conception to Age Two Period. A Cross-Party Manifesto. London. 2014. https://www.wavetrust.org/1001-critical-days-the-importance-of-the-conception-to-age-two-period

Wall G. Mothers' experiences with intensive parenting and brain development discourse. Women's Studies International Forum. 2010: 33: 253-263. https://doi.org/10.1016/j.wsif.2010.02.019

Wastell D & White S. 'Blinded by neuroscience: Social policy the family and the infant brain'. Families Relationships and Society. 2012: 1(3): 397–414. https://doi.org/10.1332/204674312X656301

Wastell D & White S. Blinded by Science: Social Implications of Neuroscience and Epigenetics Bristol: Policy Press. 2017.

Williams Z. Is misused neuroscience defining early years and child protection policy? The Guardian. 2014: 26th April. https://www.theguardian.com