Neuro Physiological Psychotherapy (NPP):
Outline and Evaluation of an integrative intervention for children who have experienced Developmental Trauma

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Family Futures
Papers


Family Futures

Family Futures is a Voluntary Adoption Agency and a multi-disciplinary assessment and treatment service for traumatised children and their foster or adoptive families.
Family Futures has been recognised as a centre of excellence by C4EO for its innovative and pioneering work with looked after children who are fostered or adopted and rated ‘Outstanding’ by Ofsted. 98% of the children who come to Family Futures for treatment remain in their adoptive families.
In the past 20 years over 470 children have been assessed and treated at Family Futures
In this study a quarter of the adopted parents taking part reported major hardship in caring for children with multiple and overlapping difficulties.

The study also found that this group of children had presented with ‘extraordinarily high’ levels of social, emotional and behavioural difficulties across two screening tools which are predictive of later mental health difficulties. Also evident from the study was that older placed children experienced a higher level of difficulties and higher level of disruption rates.
There was also a significant impact on the mental health of parents caring for this group of children, with higher levels of depression and post traumatic stress disorder reported.

Selwyn, J. Wijedasa, D. Meakings, S (2014) Beyond the Adoption Order: challenges, interventions and adoption disruption, University of Bristol School for Policy Studies Hadley Centre for Adoption and Foster Care Studies.
Context: Who we see

- Adopted and looked after children and YP of all ages
- High level of complexity
- In utero and early experience of trauma — drug and alcohol exposure, domestic violence, neglect, sensory deprivation, emotional, physical and sexual abuse (Developmental Trauma)
- Children exhibit high levels of physiological dysregulation (hyper and hypo arousal), sensory modulation, sensory motor, attachment, emotional, social, behavioural and cognitive difficulties.
- High level of risk
- Often exhibit symptoms of multiple diagnosis but yet do not meet a single specific diagnosis — therefore not often seen at CAMHS
Context: Who we see

- If seen at CAMHS standard treatments for specific diagnosis largely ineffective eg CBT/Family Therapy due to poor self regulation skills and lack of reflective capacity
- Specialist LAC services where DDP offered often not sufficient
- Parents often vicariously traumatised — in ‘Blocked Care’
- Placements at risk of breakdown
- Threat of school exclusion
Family Futures Treatment Model

Neuro-Physiological Psychotherapy (NPP)
The NPP model draws on research, theory and clinical practice.
Developmental Trauma Disorder

“Traumatised kids who come to the attention of schools and social services agencies overwhelmingly experience trauma in the context of intimate relationships. These children have come to organise their neurobiology and psychology in response to seeing the world as a threatening and overwhelming place, the result of being assaulted by their environment, or as a coping mechanism to deal with their internal dys-regulation.” Van der Kolk (2005)
Developmental Trauma Disorder

- In utero trauma
- Early infancy trauma in context of caregiving relationship
- Sensory Processing Difficulties and Neurophysiological dysregulation - fight/flight/freeze
- Lack of felt security in relational context leads to formation of insecure/disorganised attachment template/strategies
- Hard wiring of ways of experiencing and responding to the environment which are maladaptive and experienced as highly challenging
Neuro-Physiological Psychotherapy

- Works with all the triune brain — primitive, mid brain, prefrontal cortex
- Primitive, reptilian (unconscious) — Sensory input, body based (Somatic Experience), physiological regulation. Bottom up response
- Mid Brain: sensory modulation, affect regulation, development of limbic and prefrontal connections and top down response, attachment development
- Pre frontal Cortex: Metacognition: working with the reflective capacity, integration and development of a coherent narrative. Top down
- Neuro-sequential but not linear
Window of Tolerance

**Hyperarousal Zone**

2. Sympathetic ‘Fight or Flight’ Response:
   Increased sensations, flooded emotional reactivity, hypervigilant intrusive imagery, flashbacks, disorganised cognitive processing.

**Optimal Arousal Zone**

1. Ventral Vagal ‘Social Engagement’ Response:
   State where emotions can be tolerated and information integrated.

**Hypoarousal Zone**

3. Parasympathetic Dorsal Vagal ‘Immobilisation Response’:
   Relative absence of sensation, numbing of emotions, disabled cognitive processing, reduced physical movement.
<table>
<thead>
<tr>
<th>Area of the brain</th>
<th>Focus</th>
<th>Theme</th>
<th>Interventions</th>
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</thead>
<tbody>
<tr>
<td><strong>Primitive Brain</strong></td>
<td>Sensory Processing</td>
<td>Sensory Modulation</td>
<td>Sleep, eating and toileting advice</td>
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<td></td>
<td>Trauma Responses</td>
<td>Fear and stress reduction</td>
<td>Somatic and Sensorimotor work</td>
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<td>Physiological Regulation</td>
<td>Emotional and physiological awareness</td>
<td>Ayres Sensory Integration</td>
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<td>Co-regulation and attunement</td>
<td>Developmental Play</td>
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<td>Sensory Motor Skills Development</td>
<td>Medication</td>
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<td>Developmental re-parenting with 1:1 time at home</td>
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<td><strong>Limbic Brain</strong></td>
<td>Affect Regulation</td>
<td>Developing a more secure attachment</td>
<td>Theraplay</td>
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<td></td>
<td>Attachment</td>
<td>Shame reduction</td>
<td>Dyadic Developmental Psychotherapy</td>
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<td>Development of conscience and empathy</td>
<td>Creative Arts</td>
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<td>Sensory Motor Skills Development</td>
<td>Developmental re-parenting</td>
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<td></td>
<td>Building limbic-prefrontal cortex connections</td>
<td>Continue sensory integration/somatic work/mindfulness</td>
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<tr>
<td><strong>Cortical Brain</strong></td>
<td>Integration</td>
<td>Reflection and increased emotional awareness</td>
<td>DDP with a life story focus</td>
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<td></td>
<td>Reflection</td>
<td>Self regulation</td>
<td>Facilitated contact</td>
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<td>Identity</td>
<td>Developing a coherent narrative and reflective capacity</td>
<td>Individual Psychotherapy</td>
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<td></td>
<td>Fine Motor Skills e.g. writing</td>
<td>Identity and self-esteem work</td>
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<td></td>
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<td>Continue sensory/somatic work/mindfulness</td>
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Parent Support

- Psychoeducation, Training (NPP, Great Behaviour Breakdown)
- Exploration of experience of parenting scripts, attachment strategies, triggers and responses.
- Provide parents with awareness of own sensory system and sensory integration workshops
- Family and Friends Network Meetings to encourage Support and Response
School and network support

- School training and support
- EHCP application support
- Liaison with professional system
Calming the Nervous System: Ayres Sensory Integration

When children have difficulty in these sensory systems it can mean that sensory input is over-whelming, confusing, upsetting or not meaningful which causes quite a lot of anxiety in the child. Difficulty regulating sensory input can impact on the child’s ability to process and respond appropriately to incoming information (cues of safety) from the environment.

Sensory processing difficulties can have adverse effects upon self-regulation, movement, motor skill development, learning and interaction with others as well as the child’s capacity to engage and attend.
Ayres Sensory Integration
Therapy and Sensory based Interventions

- Vestibular — Swinging /Spinning/Being Upside down/ bouncing up and down
- Proprioceptive — Pushing/Pulling/ Active muscle work
- Tactile — Deep Tactile Pressure, Massage, Explorative Messy Play
- Oral — (Oral Motor and Oral Tactile) Chewing, Blowing, Sucking, Flavour
- Visual, auditory and olfactory strategies
Calming the Nervous System: Sensory Integration
Dyadic Developmental Psychotherapy (DDP)

‘DDP aims to help the parent/carer and child to first develop a manner of open engagement that is characteristic of the parent–child attachment and intersubjective experiences at all ages, and then make the connection between their current emotional, cognitive and behavioural responses within their adoptive families and their past experiences within the birth family. This is done with the organising principles of Playfulness, Acceptance, Curiosity and Empathy (PACE) and affective—reflective (A-R) dialogue and further develops the intersubjective experience between parent and child.’
SI and DDP

Footage removed for confidentiality purposes
Life Story Work

In order for a child to bring into their conscious mind their internal working model of adults and for those models to be de-constructed and re-constructed, it is necessary that they are able to make sense of, and give meaning to, their early life experience. In order to do this, it is necessary that they should possess a coherent narrative. This coherent narrative gives a chronological account of people and places as per the life story book, but should also include feelings and conscious awareness of interpersonal relationships with significant others.
Life Story Work – Making Connections
Research so far

- Scant evidence for the effectiveness of therapeutic interventions for this population of adopted children who have experienced high levels of abuse and exhibit emotional and behavioural difficulties at clinical levels.

- Many studies involve infants, children in foster care, parents only. Few studies of older placed children.


**Literature Review**

**Social Learning Theory programmes**: Evidence points to effectiveness for birth parents but not for children in alternate care with history of neglect and abuse (Hill-Tout et al, 2003; Minnis & Devine, 2001; Pallet et al, 2002; Rushton et al, 2010)

**Multidimensional Treatment Foster Care programme**: Focus on anti-social behaviour. Reduction in challenging behaviours. No change in emotional or mental health difficulties. (Chamberlain, Leve & DeGarmo, 2007; Chamberlain & Moore, 1998; Chamberlain & Reid, 1991; Eddy & Chamberlain, 2000; Eddy, Whaley, & Chamberlain, 2004; Leve & Chamberlain, 2005, 2007; Leve, Chamberlain, & Reid, 2005).

**Dialectic Behaviour Therapy (DBT)**: Significant improvement in level of depression, sense of hopelessness, self-harm and global functioning for adolescents in looked after care system (James et al, 2011). However no changes in attachment style, negative automatic thought or quality of life scores.

**Trauma focussed CBT (TF-CBT)**: Single incident trauma research only (e.g. Cohen & McMillen, 2012). Recognition of the needs to adapt TF-CB for children who are in alternative care provision and who have experienced complex trauma (e.g. Cohen et al., 2012)
Literature Review

**Dyadic Developmental Psychotherapy:** Follow up one year post treatment, significant improvements in behavioural and emotional functioning for those who received DDP in comparison with those in control group. Findings maintained over four years (Becker-Weiderman, 2006a, 2006b)

**Attachment based parent programmes:** Increased carer satisfaction in parenting their children and understanding their needs (e.g. Golding and Picken (2004). Mixed results re changes in children’s behaviours and emotional functioning. Some indicate improvement (e.g. Gurney-Smith et al., 2010). Others indicate no change (e.g. Laybourne et al, 2008)

**Attachment Regulation Competencies (ARC):** Model (Kinniburgh, Blaustein, Spinnazzola & van der Kolk, 2005) Significantly improves children’s behaviour and emotional functioning.
NPP Evaluation
Method: participant selection

First Route

Archive Treatment: 321

Met Criteria for research (Received full model, completed pre measures, no significant learning disability): 41

Agreed to take part: 24

Later withdrew/removed due to new information regarding exclusion criteria: 5

Final Sample: 19

Second Route

Current Treatment: 60

Met Criteria for research (Maintenance phase, received full model, completed pre measures, no significant learning disability): 21

Agreed to take part: 15

Did not wish to take part: 1

Did not respond: 5

Later withdrew/removed due to new information regarding exclusion criteria: 3

Final Sample: 12

Total on database = 381 (excluding birth children)

Total final sample number = 31 children (21 families)
## Participants: history of maltreatment

<table>
<thead>
<tr>
<th>Type of Maltreatment according to government guidelines</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Neglect</td>
<td>96.77 %</td>
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<tr>
<td>Emotional Abuse</td>
<td>96.77 %</td>
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<tr>
<td>Physical Abuse</td>
<td>38.71 %</td>
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<tr>
<td>Sexual Abuse</td>
<td>61.29 %</td>
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<th>Additional possible risk factors</th>
<th>Percentage</th>
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<tr>
<td>In Utero maltreatment (including maternal drug and alcohol abuse, maternal physical abuse)</td>
<td>18.18% recorded an additional 39.40% likely</td>
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<tr>
<td>Witness to Domestic Violence</td>
<td>67.74 %</td>
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<tr>
<td>Parental Substance Abuse</td>
<td>70.97 %</td>
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<tr>
<td>Parental Mental Health Diagnosis (Axis I or Axis II)</td>
<td>58.06 %</td>
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<tr>
<td>Parent Learning Disability</td>
<td>9.68 %</td>
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</tbody>
</table>
Participants

- Mean time in treatment 56 months (varying levels of intensity)
- Mean time between end of treatment and testing 20.5 months
Measures

- Behaviour Inventory of Executive Function (BRIEF) (Gioia, Isquity, Guy and Kenworthy, 2000)
- Attachment Checklist for Children (ACC) (Tarren-Sweeney, 2007)
- Child Behaviour Checklist (CBCL) – Parent and teacher report forms (TRF) (Achenbach & Rescorla (2001))
Attachment Measures

- Story Stem (Hodges, Steele, Hillman & Henderson 2003)
- Child Attachment Interview (Target, Fonagy & Schmueli -Goetz 2003)
- Marshak Interaction Method (MIM) (Marshak, 1960)
Measures

- **BRIEF (n = 27) ‘clinical’ ranges**
  - 74% Global Executive Function, 74% Behavioural Regulation Index, 70% Metacognition, 74% Emotional Control, 55-74% other domains

- **ACC (n=7) ‘borderline’ and ‘clinical’ ranges**
  - 85% Total Clinical, 85% Insecure, 71% Anxious Distrustful, 57% Sexualised Behaviour, 57% on other domains

- **CBCL (n = 25) ‘borderline’ and ‘clinical’ ranges**
  - 60% Total Problems, 60% Externalising, 40% Internalising
Procedure

- Parent, teachers and child completed BRIEF, ACC, CBCL, TRF forms
- Home visits – MIM, CAI – filmed
- Child semi-structured interview
- Parent semi-structured interview
Analysis

- Small Sample size: Shapiro-Wilk tests completed to check for normal distribution size
- Dependent t-tests or Wilcoxon signed rank tests used to assess difference between pre and post treatment scores
- Qualitative analysis of semi-structured interviews
Results: Quantitative analysis
Executive Functioning

Parent report (n = 25)
- Global Executive Composite (p < .05)
- Behavioural Regulation Index (Inhibit and Emotional Control) (p < .05)
- Working Memory and Monitor (p < .05)

Teacher report (n = 14)
- Global Executive Composite (p < .05)
- Behavioural Regulation Index (Inhibit, Emotional Control, p < .05)
- Metacognition Index* (Shift, Initiate, Plan/organise and Organisation of materials p < .05)
Attachment Related

- Attachment Checklist for Children
  - Parent report (n=7)
    - Total Problems (p <.05)
    - Insecure (p <.05)
    - Abnormal pain response (p <.05)
    - Food maintenance (p <.05)
    - (Nearing significance; Indiscriminate behaviour, p = .051, Pseudomature behaviour, p = .077, Non-reciprocal behaviour, p = .07)
Emotional and Behavioural Functioning

- CBCL – Parent Report (n = 25)
  - Total Problems p < .01
  - Externalising Difficulties (p < .05)
  - Anxious/Depressed (p < .05)
  - Social Problems (p < .01)
  - Thought Problems (p < .05)
  - Attention Problems (p < .01)
  - Aggressive Behaviour (p < .001)
  - (nearing significance – Somatic Complaints, p = .06)
Emotional and Behavioural Functioning

- CBCL – Teacher Report Form (TRF), n= 14
  - Total Problems (p < .05)
  - Externalising Difficulties (p < .05)
  - Internalising Difficulties (p < .05)
  - Social Problems (p < .01)
  - Aggressive Behaviour (p < .05)
  - (nearing significance – Anxious/Depressed, p = .07, Thought Problems, p = .06, Attention Problems, p = 0.054)
Semi-Structured Interview

- Parent interview
  - Majority reported ‘relationship improvement’
  - Majority reported high degree of satisfaction in parenting their child
  - Majority of children remained in education
  - No further mental health diagnosis
  - No involvement with Criminal Justice System
Semi-Structured Interview

- Child interview
  - Majority reported ‘relationship improvements’ with parents, siblings and peers
Limitations of Study

- Small cohort
- No comparison group
- Causality cannot be made
- However......
Positive Indicators

- Encouraging given levels of difficulties at the beginning and previous failed treatments
- Positive implications for quality of life due to increase in behavioural regulation, decrease in behavioural difficulties, better relationships, continued engagement in education, lack of involvement with the CJS
Further Research

- The missing links
  - Analysis of pre and post intervention Qualitative Data – ongoing
  - Control Group’ research – ongoing, early indicators show no improvement or worsening for non intervention group.
  - Cost effectiveness analysis needed
Application to CAMHS/LA

- MDT working and joining of services including CAMHS, OT and Education to provide holistic support based on NPP model.
Thank you

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