Improving the quality of mother–infant relationships and infant attachment in a socio-economically deprived community in South Africa: a randomised control trial

Peter Cooper and Lynne Murray
University of Reading, UK
(and Stellenbosch University, SA)
What I shall talk about:

• Background: the treatment of postnatal depression in the UK – the Cambridge RCT
• Postnatal depression and mother – infant interactions in Khayelitsha, South Africa
• The Khayelitsha RCT
• The problem of cognitive development
• The current Khayelitsha book-sharing initiative
Sampling

207 Met entry criteria

194 Agreed to participate (i.e. 6.3% refused)

142 Offered treatment
(3 refused - 2/1%)
(6 moved away - 4.2%)

133 Entered treatment
(10 dropped out i.e. 7.5%)

52 Assigned to control condition (4 lost)

42 Counselling
41 CBT
40 Psychodynamic

48 Controls
<table>
<thead>
<tr>
<th></th>
<th>Focus</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Routine Primary Care</td>
<td>...............................................(no additional care)....................................</td>
</tr>
<tr>
<td>ii)</td>
<td>Non-directive Counselling</td>
<td>Maternal</td>
</tr>
<tr>
<td>iii)</td>
<td>Cognitive-Behaviour Therapy</td>
<td>Mother-infant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relationship</td>
</tr>
<tr>
<td>iv)</td>
<td>Brief Dynamic Psychotherapy</td>
<td>Mother-infant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relationship</td>
</tr>
</tbody>
</table>

**Therapeutic conditions**
Reduction in EPDS Score

(Cooper et al, British Journal of Psychiatry, 2003)
Maternal sensitivity by treatment and social disadvantage at 4.5 months, $p<.04$

*(Murray et al British Journal of Psychiatry, 2003)*
Behaviour management problems before and after treatment (%)
Behaviour Screening Questionnaire at 18 months
Teacher reports (PBCL) at 5 years: % with clinical symptoms
Relationship problems

<table>
<thead>
<tr>
<th></th>
<th>Before Treatment</th>
<th>After Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treated</strong></td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>70%</td>
<td>70%</td>
</tr>
</tbody>
</table>

Before Treatment: Blue bar
After Treatment: Red bar
18 month Bayley MDI

Depression

<table>
<thead>
<tr>
<th>Depressed</th>
<th>Not depressed</th>
<th>Treated</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td></td>
<td>Treatment</td>
<td>Control</td>
</tr>
</tbody>
</table>

Depression Treatment
Summary of Psychotherapeutic Treatments for PND itself

Meta-analysis: Cuijpers et al., 2008
CBT, social support, interpersonal therapy, counselling, psychoanalytic therapy- all moderately effective- e.g., 60% remit vs 30%

But, mainly short term treatments with short-term follow up; so little information on long term effects; and a significant minority do not respond and by 6-9 months postpartum they have severe depressions and markedly disturbed relationships with their infants

And, little if any support for the idea that improving maternal depression improves the mother-child relationship and child outcome
Prevalence of postpartum depression at 2 months

Cooper et al, 1999, British Journal of Psychiatry
Comparison of depressed and non-depressed mother-infant interactions in Khayelitsha

Cooper et al, 1999, British Journal of Psychiatry

*, p < .05
Insecure attachments

*(Tomlinson et al Child Development, 2005)*

\[ x^2 = 6.42 \]

\[ p < 0.05 \]
Khyalitsha RCT

(Cooper et al., 2009, BMJ)

452 pregnant women invited
3 refused (0.7%)

220 randomised to intervention
229 randomised to control condition
Treatment Structure

• Therapists: trained community mothers

• Contact: Home visiting - 2x antenatally; weekly pp for 8 weeks, fortnightly for 2 months, monthly for 2 months - i.e. 16 sessions to 6 months postpartum

• Content: Support, plus ‘The Social Baby’ principles (Murray, 2000)

• Assessments: baseline, 6, 12 and 18 m
  - mother-infant interactions, infant attachment (1ary)
  - maternal mental state (2ndry)
Specific content

- Supportive counselling

- Profiling individual infant characteristics and social capacities, via Interactive Assessment, including some NBAS items (e.g. social orienting)
Mother-infant interactions: sensitivity at 6 months and 12 months (5 point-scale)

(Cooper et al, BMJ, 2009)
Mother-infant interactions: intrusiveness at 6 months (5 point) and 12 months (event count)
% insecurely attached at 18 months
Intervention effects on the Bayley MDI scores

\[ F(1, 261) = 2.82, \quad p = 0.094, \quad d = 0.21 \]
Adversity effects on the Bayley MDI

High adversity was defined by the median split of six aggregated variables:

- Being teenager (<21 years)
- Low maternal educational standard (≤ 6)
- Not being primiparous
- Pregnancy not planned
- No partner support antenatally
- No electricity in the house

\[ F(1, 259) = 2.24, \quad p = \text{ns}, \eta^2 = .009 \]
Adversity by group effects on the Bayley MDI

\[ F(1, 259) = 4.98, \ p = .03, \eta^2 = .02 \]
• the Boston School of Education College of literacy review ‘Progress in International Reading Literacy: Study’ (2007), amongst 9/10 year old children in 40 countries:

  South Africa was at the bottom of the performance table (i.e. 40th)

• SA learners in Grade 3 (children aged 9 years): 58.1% of learners did not achieve the acceptable performance level (SA Department of Basic Education, 2011).
How do poorer mother-child interactions adversely affect cognitive development?

- General reduced responsiveness (Murray et al., 1993; NICHD, 1999; Milgrom et al., 2004)
- Lack of contingency & learning (Tronick & Weinberg, 1997; Stanley et al., 2004)
- Poor modulation of input to sustain attention (Kaplan et al, 1999)
- Reduced, and less responsive book sharing (Reissland et al., 2002; Paulson et al., 2006)
Book sharing

• Drawings simple, prototypical

• Supports children attending for extended periods

• Parents make book-sharing a ‘language acquisition device’ (around 3/4 of all ‘labelling’ to 1 year-olds occurs in book sharing)

• Frequency of book sharing predicts child literacy and language, independent of SES.

• Quality important - ‘dialogic reading’- parent adjusts to developmental level, draws child in as active participant

• Book sharing incorporates all components of good cognitive support- engagement, contingency, attention regulation and could, potentially, be a simple and effect early intervention to improve child cognitive outcome
Booksharing

12 months
Bear is stretching.
Promoting book-sharing in Khayelitsha: a pilot study
(largely funded by a donation from ConstableRobinson Publishing)

Context: literacy rates in South Africa among poorest worldwide

Few book materials produced for local infants

Infants have no experience of books
Pilot study stages

• Prepare book materials
• Find local women to be book sharing mentors
• Train mentors
• Produce training powerpoint
• Recruit mothers and infants
• Conduct baseline assessments
• Run baby book groups, and ‘control’, non-book groups
• Conduct follow up assessments
Group design

• 30 mothers and infants (14-18 months) randomized to either:

• Book-sharing group: - for six weeks- once a week group, plus individual support, plus ‘books of the week’

Or (stringent control condition)

• Play group: - for six weeks - once a week group, plus individual support

• NB play group gets book-sharing afterwards
Baby books- ‘Everyday life’
Playing
Doing things with mum
Faces and feelings
Plus selected Helen Oxenbury baby books
Simple, multi-racial
Training the mentors

(Vuyolwethu Notholi, Pumza Gqwaka, Lindelwa Godwana, and Nosanda Mdudo)
Trainers training the mothers
Produce power point for mentors and mothers:

‘Book-Sharing helps babies’:

• Concentrate
• Learn new words
• Learn to use books
• Feel closer to their mothers
Starting to Book - Share

- Always follow what the baby is doing
- Don’t go too fast
- Give the baby freedom with the book:
  - Biting the book
  - Turning the pages
  - Going backwards
  - Holding the book

Babies learn more when they are having fun
Starting to Book-Share

• Help your baby with the book if he has difficulty - for example, with turning the page
Follow your baby’s interest

- Talk about what interests your baby

When your baby points at a picture or begins to talk about part of a page, you should use this interest as a chance to encourage your baby to talk.
‘Dialogic’ linking and elaboration
SUMMARY – session 5

• Book sharing should always be FUN for your baby
• Always follow your baby’s lead

• You can help your baby learn about feelings by talking about what the characters in the book are feeling

• Point to a picture and describe the emotion of the character (e.g. “That baby is laughing. He is feeling happy’. Or ‘That baby is crying. She is feeling sad’)

• Use the tone of your voice to convey the feeling (i.e. happy voice; sad voice; angry voice; frightened voice)
• When your baby knows a word, ask him/her to show it to you(‘which baby is sad?’)
• When your baby can say a word ask him to say the word for you (Point and say ‘How is this baby feeling?’)

• Explain to your baby why the character feels the way they do (e.g. ‘This baby is scared because he is frightened of the big dog’.

• Link the emotions shown by the book characters to your child’s experience of his/her own emotions (e.g. “That baby is laughing because she is happy; like you were laughing and happy this morning when you were playing with your sister”)
Mentors give one-to-one support
Baseline and follow up measures

- Mother-infant interactions during book-sharing and play
  - ‘Dialogic’ Elaboration
  - Sensitivity

- Infant-comprehension, vocabulary, attention
% mothers showing improvement following support: elaborations and sensitivity in book sharing

![Bar chart showing elaborations (count) and sensitivity (9-point scale) with N = 11 and 2]
% infants showing improvement following support: language

- **Comprehension**: [60] for book sharing (N = 13)

Legend:
- Blue: book sharing
- Red: 2
% infants showing improvement following support: attention (9-point scales)

- Book sharing N = 11
- 2
Conclusion

• Book-sharing intervention feasible and highly acceptable (no drop-outs)
• Pilot shows promising results – (although the control (play) condition was also beneficial)
• Next stage – full scale RCT – 91 participants – follow-up assessments begin next week – and while the primary outcomes will be child language and attention, we shall also be concerned to determine the impact on child social understanding and empathy