Early intervention in Eating Disorders

Friday 6 November 2015
Royal College of Psychiatrists
What is early intervention

- Perinatal? (parent-child interaction)
- Before symptoms develop?
- Young age?
- Early stage?
Early Intervention

- Two elements distinct from standard care:
  - early detection
  - phase-specific treatment
- Both can be
  - supplements to standard care, or
  - provided through a specialised early intervention team
Young People Using Their Past to Fix The Future!

Young People 'Fixing' Eating Disorders: A Cultural Shift Is Required
Early Intervention in Children and Adolescents: results from the Surrey Parent Group study

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RCPsych 2015
The need for early intervention

- Eating Disorders are difficult, time-consuming and costly to treat once established, with high morbidity and carer burden
- Numbers of young people diagnosed with ED are increasing
- High numbers hospitalised
Investment in Early Intervention

• The government has pledged £150M over 5 years to improve ‘Access and Waiting Times’ for child and adolescent ED with an emphasis on early intervention
Early Intervention for Eating Disorders

- Delay in recognition
  - Initial weight loss often seen as positive
  - Delay before parents acknowledge the extent of the problem
  - Attempts to address it themselves/Seek information on the internet
  - Chronic failure to effect change → help-seeking

  ⇒ ......Professionals go through same process

- ⇒ patient very sick at presentation
Theoretical contributors to an Early Intervention model for Eating Disorders

Eating disorders prevention

Risk factors for eating disorders

Early intervention for eating disorders

Eating disorders treatment

Early interventions in mental health

Parenting interventions

Nicholls & Yi
Early Intervention in Psychiatry
2012
Early Treatment Response

• Early change in treatment is a promising indicator of treatment outcome
• For adolescent AN, weight gain predicts outcome at EOT
  – Lock et al. 2006, Doyle et al. 2010
  – Early response defined as weight gain of 1.8 kg by session four
• For BN, early change in binge eating and purging among adolescents is a good predictor of response at the EOT
  – Le Grange et al. 2008
Early Intervention for Eating Disorders

A Phase II study aiming to

• Estimate effect size

• Generate hypotheses on mediators and moderators of change
Why a parenting approach?

- Parental/family factors as maintaining factors
  - Treasure and Russell 2011
- Family based treatment effectiveness
- Parents first to seek help
- In vivo behaviours predict early response
  - Darcy et al 2014
- Well established evidence base for parenting interventions
MRC Framework for Development of Complex Interventions

**Theory**
- Preclinical: Explore relevant theory to ensure best choice of intervention and hypothesis and to predict major confounders and strategic design issues.

**Modelling**
- Phase I: Identify the components of the intervention and the underlaying mechanisms by which they will influence outcomes to provide evidence that you can predict how they relate to and interact with each other.

**Exploratory trial**
- Phase II: Describe the constant and variable components of a replicable intervention and a feasible protocol for comparing the intervention with an appropriate alternative.

**Definitive randomised controlled trial**
- Phase III: Compare a fully defined intervention with an appropriate alternative using a protocol that is theoretically defensible, reproducible, and adequately controlled in a study with appropriate statistical power.

**Long term implementation**
- Phase IV: Determine whether others can reliably replicate your intervention and results in uncontrolled settings over the long term.

*Continuum of increasing evidence*
Surrey Early Intervention for Child and Adolescent Eating Disorders

A Group Parenting Approach

Dasha Nicholls and Irene Yi

The manual is freely available at www.e-lucid.com

2015

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Parent group

- 6 sessions, 1.5 hours each, delivered by 2 clinicians
- Topics include:
  - Diagnoses
  - Communication
  - Change
  - Meal planning
  - Maintaining factors
- Review at 6 weeks to decide next steps
Evaluation: Before/after comparison
(7 point likert scale; n=36)

Nicholls and Yi 2012 Early Interv. Psychiatry

*** sig <0.005
## Most helpful elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity to express personal experience</td>
<td>93%</td>
</tr>
<tr>
<td>Distinct weekly topics</td>
<td>82%</td>
</tr>
<tr>
<td><strong>Formal teaching</strong></td>
<td><strong>54%</strong></td>
</tr>
<tr>
<td>Info about ED</td>
<td>93%</td>
</tr>
<tr>
<td>Info about managing ED</td>
<td>96%</td>
</tr>
<tr>
<td>Group discussion</td>
<td>93%</td>
</tr>
<tr>
<td>Meeting other parents</td>
<td>96%</td>
</tr>
<tr>
<td>Flexible format</td>
<td>75%</td>
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</tbody>
</table>
Measures

• At T0 (assessment)
  – %BMI (Primary outcome measure)
  – Eating disorder psychopathology (EDE-Q)
  – Depression (CDI or BDI-II)
  – ED and OCD sections of the DAWBA (Parents)
  – Parent questionnaire (Parents)

• At T1 (Post groups/First review; 6-8 weeks)
  – Assessment measures repeated, with the exception of the parent questionnaire.

• At T2 (6 months), as above

• For those who attended the parents groups:
  – Pre-and post-intervention questionnaires.
Referred (n = 339)

Assessed (n = 259)

Eligible (n = 175)

Recruited (n = 96)

No Parent Group (n = 15)

Attended Parent group (n = 67)

Did not meet service criteria (n = 67)
DNA/Declined (n = 3)
Other (n = 10)

Did not meet study inclusion criteria (n = 57)
DNA/Declined (n = 20)
Other (n = 7)

Declined to participate (n = 79)

Early Drop out (n = 10)
After recruitment (n = 4)

T0 - Assessment
%BMI (n = 15); EDEQ (n = 13); BDI ii/CDI 2 (n = 14); DAWBA (n = 15); CGAS (n = 10)

T0 - Assessment
%BMI (n = 67); EDEQ (n = 64); BDI ii/CDI 2 (n = 65); DAWBA (n = 62); CGAS (n = 49)

T1 – 6 – 8 weeks post asst
%BMI (n = 11); EDEQ (n = 3); BDI ii/CDI 2 (n = 3); DAWBA (n = 2)

T1 - Post Groups
%BMI (n = 66); EDEQ (n = 27); BDI ii/CDI 2 (n = 25); DAWBA (n = 25)

T2 – 6 months
%BMI (n = 2); EDEQ (n = 7); BDI ii/CDI 2 (n = 7); DAWBA (n = 4)

T2 – 6 months
%BMI (n = 63); EDEQ (n = 24); BDI ii/CDI 2 (n = 22); DAWBA (n = 21)
Demographics

- N=82
- Mean age 14.84 (SD 1.6)
- 77 female; 5 male
- 79.3% from intact families

- Anorexia Nervosa
  52 (63.4%)
- Bulimia Nervosa
  10 (12.2%)
- Atypical ED
  20 (24.4%)
• Differences in age between diagnostic groups were not statistically significant (F2.61; p0.08), but differences in baseline %BMI were (F 33.18; p 0.00).

• Group attendance higher for AN than other diagnoses: 96% AN vs 44% BN vs 70% Atypical EDs.
Background factors

- FHx of mental health problems
  - 33 (40%)
- FHx of eating disorder
  - 21 (25.6%)
- FHx weight problems
  - 19 (23%)
- Child overweight in past
  - 13 (17%)

- Duration of change in eating behaviour
  - Mean 9 months (SD 10.9; range 1-90)
- Pubertal status
  - 12 premenarcheal (15.6% of girls)
  - 1 prepubertal
    - (8 data missing)
  - Of postmenarcheal, 34/61 amenorrhoea
# Severity of ED

<table>
<thead>
<tr>
<th>Measure</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
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<tr>
<td>T0CGAS</td>
<td>59</td>
<td>30</td>
<td>71</td>
<td>54.6</td>
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<tr>
<td>T0EDEQRestraint</td>
<td>74</td>
<td>.0</td>
<td>6.0</td>
<td>4.00</td>
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<tr>
<td>T0EDEQEatingConcern</td>
<td>74</td>
<td>.0</td>
<td>13.0</td>
<td>3.52</td>
<td>1.97</td>
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<tr>
<td>T0EDEQShapeConcern</td>
<td>74</td>
<td>.0</td>
<td>6.0</td>
<td>4.49</td>
<td>1.69</td>
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<tr>
<td>T0EDEQWeightConcern</td>
<td>74</td>
<td>.0</td>
<td>6.0</td>
<td>4.05</td>
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<tr>
<td>T0EDEQGlobalScore</td>
<td>78</td>
<td>.2</td>
<td>5.7</td>
<td>3.90</td>
<td>1.59</td>
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</table>

Loss of Control Eating
15 (18%)
– 8 of these >2 x per week
Symptoms and Comorbidity

- 25 (35%) Self Induced Vomiting
- 15 (18%) Loss of Control Eating  
  - 8 of these >2 x per week
- 44 (55%) Depressed  
  - score >23 on BDI-II or CDI
- 20 (24%) OCD on parent DAWBA
Intervention received

- 12 (14.5%) admitted to inpatient treatment almost immediately
- 67 attended parents groups in addition to TAU
  - 31 both parents
  - More for those with AN (96%) than other diagnoses
Primary Outcome

- Increase in %BMI at 6 weeks
  - Only applies to those underweight
  - Definition of underweight controversial
  - Chose Grade 1 thinness (Cole et al. BMJ 2007)
    - ~ <87.3% BMI
Effect size for underweight subjects

- Mean %BMI change T0-T1 = 4.5% (2.2kg (SD 2.6))
- Effect size (Cohen’s d) =
  - 0.82 for in Grade 1 thinness subjects.
Early weight gain predictors

**No effect of:**

- Baseline Variables
  - Age
  - Gender
  - Diagnosis
  - Menarcheal status
  - Depression
  - OCD
  - EDE restraint, eating or shape concern
  - Self induced vomiting
  - Loss of Control eating

- Parent knowledge
- Parent understanding
- Parent confidence
- Parental support
- Meal Plan adherence
- Burden
- Distress
- Baseline CGAS score
No Effect of

- Treatment variables
  - Parents attended group
  - Both parents
  - Number of sessions
  - Whether admitted
  - Change in Parental Understanding/Skill/Knowledge/Confidence
  - Change in meal plan adherence
Early weight gain was predicted by:

- \%BMI at baseline

B = -0.28
(-0.51, -0.05)
Adjusted \( R^2 \) = 0.10
P = 0.02
Duration of illness
- until outlier removed
Also predicted by

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Regression Coefficient B (95%CI)</th>
<th>Adjusted R2</th>
<th>p</th>
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<tr>
<td>EDE-Weight concern</td>
<td>41</td>
<td>-0.80 (-1.57, -0.03)</td>
<td>0.08</td>
<td>0.04</td>
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<td>EDE-Global Score</td>
<td>43</td>
<td>-0.86 (-1.60,-0.12)</td>
<td>0.10</td>
<td>0.02</td>
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<td>Change in how supported</td>
<td>11</td>
<td>1.03 (0.13,1.93)</td>
<td>0.36</td>
<td>0.03</td>
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<tr>
<td>Parents felt</td>
<td></td>
<td></td>
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</tbody>
</table>

- (Parental self assessed skill at baseline was borderline p0.057; CI -0.04 – 2.2)
Outcome at T2 (6 months)

- Not significantly associated with
  - Baseline %BMI
  - Duration of illness
- Positively associated with
  - Early weight gain T0-T1
  - Parental confidence post groups and report of whether the group helped
In summary so far...

- Most young people who were underweight gained weight in first 6-8 weeks
- Thinner people gain more weight
- Those who responded early had a better outcome at 6 months
Can we model treatment response?

• Additional analyses
  – A repeated measures approach using random effects multilevel modelling to explore the influence of patient and intervention characteristics on the primary outcome, weight (measured weekly).
What is multilevel modelling?

- Preferred method for analysis of change over time in biological data.
- Many observational data have a hierarchical or clustered structure. Multilevel data structures also arise in longitudinal studies where an individual’s responses over time are correlated with each other e.g. weight.
- Multilevel models recognise such data hierarchies by allowing for residual components at each level in the hierarchy. Using multilevel modelling enables us to examine the extent of grouping in individual outcomes, and potentially identify ‘outlying’ groups.
Multi-level models

- 698 %BMI observations across 45 subjects with Grade 1 thinness at baseline
  - mean 15.5 per subject (range 5 to 25)
- 1. Growth model
  - average trajectory of %BMI across 6 months allowing for within-subject and between-subject variation
  - multilevel mixed-effects model for change in Stata 13
- 2. Mixture model
  - Identifies whether the population is a ‘mixture’ of different populations
  - trajectories = growth models for different populations
  - Stata 13 traj package, using censored normal distribution model (%BMI range is 60-120%)
Follow-up %BMI data for 45 patients
Mixture model: 3 trajectory solution has best model fit

Class 1 – significant positive linear slope coefficient. Classes 2 & 3 have positive linear and negative quadratic coefficients.
Other Outcomes?
Change in EDE-Q at 6 weeks and 6 months
Conclusions

- Large effect size of parents group intervention on weight gain for underweight subjects
- Short term outcome predicts long term outcome
- Feasible to study, reasonable recruitment and retention, data loss with time
- Hypotheses re predictors of treatment response for further exploration
Other Early Intervention models

- (FBT)
- Intensifying FBT by adding in 3 sessions
  - Lock et al
- ECHO
- FREED
Emphasis of the Access and Waiting Times Guidance is to ..... 

• Reduce the time from recognition to receiving a ‘NICE-concordant treatment’
• Enormous resource implications which £150M will barely begin to address
Questions around

- What aspects of treatment can be delivered through technology/digitally
- Where to load the expertise
  - Most difficult to treat
  - Early in the process to maximize early response
- Can we begin to stage patients on the basis of treatment response?
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Questions or comments?

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