Family-based treatment for adolescent eating disorders: The Maudsley Approach

Daniel Le Grange, Ph.D.
Professor of Psychiatry & Behavioral Neuroscience

THE UNIVERSITY OF CHICAGO
BIOLOGICAL SCIENCES
Acknowledgements

- National Institutes of Health
- Baker Foundation and the NHMRC
- UChicago Eating Disorders Team
Outline of Presentation

- An overview of Family-Based Treatment research at Chicago
- Adolescent anorexia nervosa
- Adolescent bulimia nervosa
- Young adults with anorexia nervosa
- Overweight adolescents
Part 1

Adolescent Anorexia Nervosa
MAUDSLEY HOSPITAL

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1st FBT-AN Study

↓

2nd FBT Study

↓

AN Manual

↓

Multi-site AN RCT

↓

Melbourne RCT

↓

?
The Maudsley Hospital
"The patients should be fed at regular intervals, and surrounded by persons who would have moral control over them; relatives and friends being generally the worst attendants."

William Gull
(1816-1890)
None should be surprised to note that I always consider the morbid state of the hysterical patient side by side with the preoccupations of her relatives.

“In view of the undoubted psychological aspects (of the disorder), it would be equally regrettable to ignore or misinterpret the patient’s psychological surroundings.”

Charles Lasegue (1816-1883)
“It is necessary to separate both children and adults from their father and mother, whose influence, as experience teaches, is particularly pernicious”

Jean Martin Charcot (1825-1893)
The 20th Century

First Half - Parentectomy*: “A slang term meaning removal of a parent (or both parents) from the child.” *MedicineNet.com

Second Half - Salvador Minuchin, Child Psychiatrist and architect of Structural Family Therapy
The Maudsley Approach

There is little doubt that the presence of an ED has a major impact on family life. With time, food, eating, and their concomitant concerns begin to saturate the family fabric. Consequently, daily family routines as well as coping and problem solving behaviors are all affected.

Ivan Eisler, Principal Architect of the Maudsley Approach
The Maudsley Approach

Hospitalization

Traumatic

Disempowers Parents
First Maudsley RCT: Subgr. 1 + 5 Yr FU

- FBT n=10
- Supportive therapy n=9
- 12 months Tx
- 5-year FU

Russell, Szmukler, Dare, Eisler, Arch Gen Psych, 1987; Eisler, Dare, Russell, Szmukler, Le Grange, Dodge, Arch Gen Psych, 1997.
Second Maudsley RCT (N=58)

- Pilot n=18
- Larger study n=40
- Conjoint FBT
- Separated FBT

First Dissemination Study: Chicago Case Series (N=45)

$t(44)=8.153, p<.001$

Le Grange, Binford & Loeb, JAACAP, 2005.
Second Dissemination Study: Columbia Open Trial (N=20)

**Tx Response**
- 75% completed full course of treatment
- 67% menstruating by end of treatment
- %IBW changed from 81.9 to 94.1 (p=.000)
- Sign changes in EDE Res, EC, binge/purge, and BDI

Weight gain >1.36 kgs at week 4 correctly characterized:

- 79% of responders [AUC = .814 (p<.001)]
- 71% of non-responders [AUC = .811 (p<.001)]

FBT vs AFT for adolescent anorexia nervosa

A multisite comparison

Lock, Le Grange, Agras, Moye, Bryson & Jo, *Arch Gen Psych*, 2010
Le Grange, Lock, Agras, Moye, Bryson, Kraemer & Jo, *In preparation*
Study Design

Chicago (Le Grange)

Stanford (Lock)

Assessors & Therapists

Assessors & Therapists

DCC (Agras)
175 Assessed

- 54 Excluded

121 Randomized

AFT (n=60)
- Received intervention (n=58)
  - Terminated Prematurely (n=2)

  - EOT = 52
    - 6 Mo FU = 46
    - 12 Mo FU = 49

  - ITT MEM
    - Full Remission = 54

FBT (n=61)
- Received intervention (n=53)
  - Terminated Prematurely (n=8)

  - EOT = 51
    - 6 Mo FU = 43
    - 12 Mo FU = 44

  - ITT MEM
    - Full Remission = 51
Chicago/Stanford RCT for Adolescent AN

- FBT > AFT in promoting full + partial remission; Meds will moderate outcome
- Randomized 121 med stable adolescent AN (excl amenorrhea) to FBT or AFT; 2 mo on stable meds dose still meeting entry criteria
- 12 mo (24 contact hrs) of tx (24-1 hr sessions in FBT & 32-45 min sessions in AFT including collaterals with parents alone)
- Independent assessments of weight + EDE at BL, EOT, 6 and 12 month follow-up
Primary Outcome

Full remission, i.e., 95% IBW for height and age according to CDC norms + EDE within 1SD of community norms

- Approximates weight needed for return to full physical health in young adolescents and addresses growth, bone health, and hormonal function

- EDE threshold is in the normal range for community sample and addresses minimization common in adolescent AN
Secondary Outcome

Partial remission, i.e., weight greater than 85% IBW age for height using CDC norms

- This threshold approximates common cut point for good/intermediate outcome in studies using M/R Outcome Criteria
## Patient Baseline Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Chicago</th>
<th></th>
<th>Stanford</th>
<th></th>
<th>TOTAL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AFT</td>
<td>FBT</td>
<td>AFT</td>
<td>FBT</td>
<td>AFT</td>
<td>FBT</td>
</tr>
<tr>
<td>Age</td>
<td>14.7 (1.6)</td>
<td>14.4 (1.8)</td>
<td>14.8 (1.4)</td>
<td>13.8 (1.6)</td>
<td>14.7 (1.5)</td>
<td>14.1 (1.7)</td>
</tr>
<tr>
<td>Comorbidity</td>
<td>31%</td>
<td>12%</td>
<td>32%</td>
<td>28%</td>
<td>32%</td>
<td>20%</td>
</tr>
<tr>
<td>Duration illness (mo)</td>
<td>8.9 (7.8)</td>
<td>11.6 (8.5)</td>
<td>11.6 (9.5)</td>
<td>13.0 (8.6)</td>
<td>10.3 (8.7)</td>
<td>12.3 (8.5)</td>
</tr>
<tr>
<td>Ethnicity (% minority)</td>
<td>2 (7%)</td>
<td>5 (16%)</td>
<td>11 (35%)</td>
<td>11 (38%)</td>
<td>13 (22%)</td>
<td>16 (26%)</td>
</tr>
<tr>
<td>Gender (% male)</td>
<td>10%</td>
<td>12%</td>
<td>3%</td>
<td>10%</td>
<td>7%</td>
<td>11%</td>
</tr>
<tr>
<td>Intact family</td>
<td>79%</td>
<td>94%</td>
<td>74%</td>
<td>66%</td>
<td>77%</td>
<td>80%</td>
</tr>
<tr>
<td>Medication use</td>
<td>31%</td>
<td>28%</td>
<td>6%</td>
<td>3%</td>
<td>18%</td>
<td>16%</td>
</tr>
<tr>
<td>Parent Education (yrs)</td>
<td>17.8 (2.6)</td>
<td>16.3 (2.6)</td>
<td>16.1 (3.3)</td>
<td>17.1 (2.6)</td>
<td>17.0 (3.1)</td>
<td>16.7 (2.6)</td>
</tr>
<tr>
<td>Previous Hosp</td>
<td>24%</td>
<td>19%</td>
<td>71%</td>
<td>66%</td>
<td>48%</td>
<td>41%</td>
</tr>
<tr>
<td>Sample Size</td>
<td>29</td>
<td>32</td>
<td>31</td>
<td>29</td>
<td>60</td>
<td>61</td>
</tr>
</tbody>
</table>
Remitted at 3 months

Fisher’s Exact
\[ F(1,105) = 5.5, \ p = 0.021 \]
Observed Partial and Full Remission by Treatment
Time until %IBW > 95%
Maintenance of Remission

*Fisher's Exact p=.021
**Findings**

- FBT is superior to AFT in promoting full remission at follow-up
- FBT is superior to AFT in promoting partial remission at EOT, but diminishes over time
- More participants treated with FBT reached weight restoration by 3 months than in AFT
- Maintenance of remission in FBT is superior to AFT
Implications

- FBT should be the first line intervention for adolescents with AN who are medically fit for outpatient treatment

- Most patients respond favorably after relatively few treatment sessions if illness is recognized early on

- AFT could be a credible alternative for some patients
A comparison of conjoint FBT and PFT in adolescents with AN

Chicago and Melbourne
Study Design

Assessment + Randomization

FBT (n=50)
Conjoint Treatment
Medical FU
Treatment of co-morbid conditions

Six mo FU
12 mo FU

PFT (n=50)
Parents Only
Medical FU
Treatment of co-morbid conditions

Six mo FU
12 mo FU
Further Work

- Longer term outcome studies can determine if differences in outcome are maintained.
- Usefulness of AFT, another therapy, or ‘more’ FBT as alternative treatments need to be explored.
- M/M analyses will shed light on pt groups that respond better to FBT or AFT and increase our understanding of how these txs work.
Part 2

Adolescent Bulimia Nervosa
FBT-BN vs SPT for adolescent BN

*Chicago RCT*

Chicago RCT for Adolescent BN

- Random allocation to one of two manualized treatments, FBT-BN (active) vs. SPT (control)
- Primary outcome criteria are binge and purge frequency (EDE)
- Assessments at Baseline, Mid-treatment, Post-treatment and 6-month FU
140 Assessed

6 Pilot Cases

Excluded (n=54)
- Did not qualify (n=29)
- Refused (n=25)

80 Randomized

FBT-BN (n=41)
- Received intervention (n=36)
- Terminated Prematurely (n=5)
  - Lost to follow-up (n=7)
  - 41 Included in Analyses

SPT (n=39)
- Received intervention (n=35)
- Terminated Prematurely (n=3)
  - Lost to follow-up (n=5)
  - 39 Included in Analyses
## Patient Demographics ($N=80$)

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>16.1 (1.6)</td>
</tr>
<tr>
<td>Gender (female/male)</td>
<td>78/2</td>
</tr>
<tr>
<td>BMI (kg/ht$^2$)</td>
<td>22.1 (2.9)</td>
</tr>
<tr>
<td>Duration illness (months)</td>
<td>21.2 (22.3)</td>
</tr>
<tr>
<td>Prior treatment (%)</td>
<td>12 (15)</td>
</tr>
<tr>
<td>Menses (%)</td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>41 (51)</td>
</tr>
<tr>
<td>Irregular</td>
<td>29 (36)</td>
</tr>
<tr>
<td>Birth control/male</td>
<td>10 (13)</td>
</tr>
<tr>
<td>Ethnicity (%)</td>
<td></td>
</tr>
<tr>
<td>White (non-Hispanic)</td>
<td>51 (64)</td>
</tr>
<tr>
<td>Minority</td>
<td>29 (36)</td>
</tr>
<tr>
<td>Family Status (%)</td>
<td></td>
</tr>
<tr>
<td>Intact</td>
<td>46 (58)</td>
</tr>
<tr>
<td>Not intact</td>
<td>34 (42)</td>
</tr>
</tbody>
</table>
## Baseline Eating Pathology (EDE)

<table>
<thead>
<tr>
<th></th>
<th>FBT (n=41)</th>
<th>SPT (n=39)</th>
<th>Total (N=80)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBE</strong></td>
<td>18.4 (28.0)</td>
<td>18.9 (22.3)</td>
<td>18.7 (25.2)</td>
</tr>
<tr>
<td><strong>SBE</strong></td>
<td>9.9 (16.6)</td>
<td>7.6 (10.1)</td>
<td>8.8 (13.8)</td>
</tr>
<tr>
<td><strong>Self-induced vomiting</strong></td>
<td>34.5 (31.0)</td>
<td>33.2 (33.5)</td>
<td>33.9 (32.1)</td>
</tr>
<tr>
<td><strong>All purging</strong></td>
<td>49.5 (36.9)</td>
<td>50.2 (42.3)</td>
<td>49.9 (39.4)</td>
</tr>
<tr>
<td><strong>EDE Global Score</strong></td>
<td>3.59 (1.1)</td>
<td>3.72 (1.1)</td>
<td>3.66 (1.1)</td>
</tr>
</tbody>
</table>
# Baseline General Psychopathology

<table>
<thead>
<tr>
<th>K-SADS (%)</th>
<th>FBT (n=41)</th>
<th>SPT (n=39)</th>
<th>Total (N=80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No diagnosis</td>
<td>13 (32)</td>
<td>17 (43.5)</td>
<td>30 (37)</td>
</tr>
<tr>
<td>Current depression</td>
<td>21 (51)</td>
<td>17 (43.5)</td>
<td>38 (47)</td>
</tr>
<tr>
<td>Current anxiety</td>
<td>2 (5)</td>
<td>1 (3)</td>
<td>3 (4)</td>
</tr>
<tr>
<td>Subthreshold dx</td>
<td>4 (10)</td>
<td>2 (5)</td>
<td>6 (8)</td>
</tr>
<tr>
<td>Other diagnosis</td>
<td>1 (2)</td>
<td>2 (5)</td>
<td>6 (8)</td>
</tr>
<tr>
<td>Rosenberg Self-esteem</td>
<td>27.6 (6.8)</td>
<td>27.2 (5.1)</td>
<td>27.4 (5.9)</td>
</tr>
<tr>
<td>Beck Depression Invent.</td>
<td>25.8 (12.2)</td>
<td>24.6 (11.8)</td>
<td>25.2 (11.9)</td>
</tr>
</tbody>
</table>
Binge Self-Report: Baseline - EOT

1. $p = .002$
2. $p = .011$
Purge Self-Report: Baseline - EOT

\[ p = 0.002 \]

\[ p = 0.011 \]

\[ p = 0.006 \]
Receiver Operating Characteristic Analysis (ROC)

Regardless of treatment, symptom reduction at session 6 predicted remission at:

- post-treatment [AUC = .814 (p<.001)]
- 6-month follow-up [AUC = .811 (p<.001)]

**Eating Pathology at Mid-Treatment**

<table>
<thead>
<tr>
<th></th>
<th>Pre-Treatment</th>
<th>Mid-Treatment‡</th>
<th>Post-treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FBT-BN</td>
<td>SPT</td>
<td>FBT-BN</td>
</tr>
<tr>
<td>OBE</td>
<td>18.4 (28.1)</td>
<td>18.9 (22.3)</td>
<td>4.5 (16.5)</td>
</tr>
<tr>
<td>SBE</td>
<td>9.9 (16.6)</td>
<td>7.6 (10.1)</td>
<td>3.7 (7.0)</td>
</tr>
<tr>
<td>Vomit</td>
<td>34.5 (31.0)</td>
<td>33.2 (33.5)</td>
<td>6.1 (9.0)</td>
</tr>
<tr>
<td>All purging</td>
<td>49.5 (36.9)</td>
<td>50.2 (42.3)</td>
<td>8.9 (10.8)</td>
</tr>
<tr>
<td>Restraint</td>
<td>3.8 (1.3)</td>
<td>3.7 (1.7)</td>
<td>1.9 (1.6)</td>
</tr>
<tr>
<td>Weight Concern</td>
<td>3.7 (1.4)</td>
<td>4.1 (1.3)</td>
<td>2.1 (1.7)</td>
</tr>
<tr>
<td>Shape Concern</td>
<td>4.0 (1.4)</td>
<td>4.2 (1.1)</td>
<td>2.6 (1.6)</td>
</tr>
<tr>
<td>Eating Concern</td>
<td>2.9 (1.4)</td>
<td>2.9 (1.2)</td>
<td>1.5 (1.5)</td>
</tr>
<tr>
<td>Global</td>
<td>3.6 (1.1)</td>
<td>3.7 (1.1)</td>
<td>2.0 (1.5)</td>
</tr>
</tbody>
</table>

‡ *p < .017 FBT-BN < SPT*
Remitted at EOT (no b/p)

*Fisher’s Exact
\( p = .049 \)
Partial Remission at EOT (no longer meeting study criteria)

Partial Remission at EOT*

*Fisher’s Exact
p=.055
EDE Global Score*

*Main effect for group $p<.017$
Remitted at 6mo FU (no b/p)

*Fisher’s Exact p=.050
Partial Remission at 6mo FU (no longer meeting study criteria)

*Fisher’s Exact $p = .377$
Findings

- Significantly greater early reductions in symptomatic behavior for patients in FBT-BN than in SPT (FBT-BN > efficient SPT)
- Significantly more patients in FBT-BN than in SPT remitted at EOT and FU
- 40% in FBT-BN remitted at EOT is still just a “foot in the door”
FBT vs CBT vs SPT for adolescents with bulimia nervosa

A multi-site comparison
Study Design

- Chicago (Le Grange)
  - Assessors & Therapists
  - DCC (Agras)
  - Stanford (Lock)
  - Assessors & Therapists
Study Design

Assessment and Randomization (N=158)

- **FBT (N=60)**
  - Patient + Parents
  - Medical FU
  - Treatment of comorbidities

  - Six mo FU
  - 12 mo FU

- **CBT (N=60)**
  - Patient only
  - Medical FU
  - Treatment of comorbidities

  - Six mo FU
  - 12 mo FU

- **SPT (N=38)**
  - Patient Only
  - Medical FU
  - Treatment of comorbidities

  - Six mo FU
  - 12 mo FU
Future work

- Much further work is required as we need to know more about:
  - Type of family involvement
  - CBT for adolescent BN
  - Role of medication
Part 3

FBT-Y for young adults with AN

Chicago Treatment Development
Operational mechanisms for FBT and FBT-Y

Two iterations of 5 patients $\rightarrow$ open trial (N=20)
Future work

- Depending on the outcome of this treatment development study, the next step would be a RCT of FBT-Y vs. ?
Part 4

FBT for Pediatric Overweight

Chicago and Mt Sinai Multi-site RCT
Study Design

Chicago (Le Grange)
Assessors & Therapists

Mt Sinai (Loeb)
Assessors & Therapists

DCC
Chicago/Mt Sinai
Study Design

Assessment + Randomization

FBT (n=40)
Conjoint Treatment
Medical FU if necessary

Six mo FU

NEC (n=40)
Education Only
Medical FU if necessary

Six mo FU
Future work

- Depending on the outcome of the PO Study, the next step will be a RCT of FBT-PO vs ?
Anorexia Nervosa

FBT = 1st line treatment

Bulimia Nervosa

Signals favor FBT and CBT

Young Adults with AN

Adolescent Overweight

Where are we today and are we onto something new?