Social processing: A causal and maintaining factor

Prof. Janet Treasure
janet.treasure@kcl.ac.uk

www.eatingresearch.com
Social Factors

Social and emotional factors as:
(1) risk factors.
(2) consequences of starvation.
(3) impact on close others.
Tertiary Process
Mindfulness
Executive function, emotional processing, Intention to act

Secondary Process
Learning Memory (contextual factors), conditioning and emotional habits

Primary Process
Raw sensory, homeostatic, TASTE, TOUCH innate

Emotion & Drive Regulation

What is the social and emotional world of people with eating disorders?
Isolation & Inferiority

Loneliness, shyness, and inferiority in childhood and adolescence
Internalising problems (Adambegan et al 2012).
Social anxiety preonset (Swinbourne et al 2012).
Inferiority to others persists post recovery (Oldershaw et al 2012)
# Social Emotional Difficulties

<table>
<thead>
<tr>
<th>Domain</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative self evaluation</td>
<td>2.2</td>
</tr>
<tr>
<td>Lack facial affect</td>
<td>2.0</td>
</tr>
<tr>
<td>Attachment insecurity</td>
<td>1.3</td>
</tr>
<tr>
<td>Sensitivity to social ranking</td>
<td>1.1</td>
</tr>
<tr>
<td>Alexithymia</td>
<td>0.66</td>
</tr>
<tr>
<td>Avoidance emotion</td>
<td>0.44</td>
</tr>
<tr>
<td>Low parental care</td>
<td>0.55</td>
</tr>
<tr>
<td>Reduced agency</td>
<td>0.39</td>
</tr>
<tr>
<td>Parental overprotection</td>
<td>0.29</td>
</tr>
</tbody>
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Caglar-Nazali et al. *Neuroscience and Biobehavioral Reviews* (2013)
Primary Interpersonal Issues

• AN decreased emotional expression.
• BN have difficulties with trust and conflict (Arcelus et al., 2013).
People with eating disorders have different attentional strategies
Reduced Social Emotional Regulation

- ED longer to name the colour for faces.
- More distracted by non-verbal emotional signalling of threat and ambiguous faces

Large effect in acute state. Medium effect in recovered

Harrison et al 2009, 2010
Sensitivity to Punishment vs. reward

(Cardi et al 2011, Corfield et al 2012)
Attention to Rejection

![Bar graph showing attentional responses to rejection](image)

- **RT scores**
  - ED
  - REC
  - HC

Time points:
- 500 ms
- 1250 ms

**Attentional responses to rejection**
Attention to Dominance

Cardi et al. 2011
Attention to Acceptance

Attentional responses to acceptance

reaction time scores

ED
REC
HC

500 ms
1250 ms
A bias towards threat and away from compassion (Cardi et al 2012)
Emotional & Drive Systems

Drive, excite, vitality
- Incentive/resource focused
- Behavioural Activation System (BAS)
- Dopamine

Content, safe, connected
- Affiliative focused
- Soothing/safeness
- Opiates /Oxytocin

Anger, anxiety, disgust
- Threat-focused safety seeking
- BIS
- Activating/inhibiting
- Serotonin

Content, safe, connected
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Social and emotional biases
Super feeler for threat, dominance
People with eating disorders are hard to read
Frequencies of positive and negative expressions to adults’ emotional displays.
Emotional Expression

*(Davies et al 2011)*

**Congruence**

expression/experience

<table>
<thead>
<tr>
<th>HC</th>
<th>AN</th>
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**Attention**

<table>
<thead>
<tr>
<th>HC</th>
<th>AN</th>
</tr>
</thead>
</table>

![Image of emotional expression with congruence and attention indicators]
Facial Expression in Video Game
(Claus et al. 2012)

Emotion regulation – video game
Facial expression from camera during game.
Trait anger BN= 26>AN= 22>HC=18
Anger Exp BN= 32>AN= 31>HC=242
Anorexic Voice- hissing or shouting
I am disgusting. I must try to succeed. How many calories in that. What is the food composition. What is my weight. I cannot go above I must keep losing weight. I am weak. Stupid and lazy and gluttonous. I’m a fat pig. I’m disgusting. I don’t deserve to eat. I don’t deserve to live.

etc etc.

Note the calm exterior
I was known as the ice queen at Uni. Tutors would get annoyed as they thought I did not care. They did not know what was going on inside.

Suppression emotion reaction
↑ physiological arousal
↓ emotional regulation (Oschner)

Monitoring of own facial expression make that person less responsive.
I was known as the ice queen at Uni. Tutors would get annoyed as they thought I did not care. They did not know what was going on inside.

Partners of suppressors greater increases in blood pressure (Gross 2013)

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Anorexic Voice
I am disgusting. I must try to succeed
How many calories in that. What is the
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weight etc etc.

Reverses weight gain
Emotional suppression?
Reduced dopamine

Note the calm exterior
Social cognition

Theory of mind used to negotiate social interactions
Signals & Interpretation
1. Reading the Mind in the **EYES**

Baron-Cohen et al: Cambridge Autism Research Centre
Emotion Recognition
*(Oldershaw et al 2011)*

### Basic emotion recognition
- Kessler et al: -0.19 (-0.55, 0.17) 14.1
- Mendlewicz et al: -0.43 (-0.92, 0.05) 11.4
- Zonnevyle-Bender et al: -0.25 (-0.65, 0.15) 13.1
- Zonnevyle-Bender et al: -0.06 (-0.55, 0.44) 11.1
- Kucharska-Pietura et al: -0.60 (-1.12, -0.09) 10.7
- Zonnevyle-Bender et al: -0.51 (-1.02, -0.00) 10.8
- Subtotal: -0.31 (-0.50, -0.13) 71.2

### Complex emotion recognition
- Harrison et al: -1.21 (-1.88, -0.53) 8.1
- Oldershaw et al: -0.55 (-0.98, -0.12) 12.5
- Russell et al: -1.41 (-2.07, -0.75) 8.2
- Subtotal: -1.01 (-1.57, -0.44) 28.8

### Overall
- -0.52 (-0.77, -0.27) 100.0
Theory of Mind
Understanding how others think not just what they say

About 20% of people with anorexia nervosa have some difficulty with this. Tchanturia et al 2004, 2009.

“Just back up little dear, so you won’t cut my head off”
Impaired Reading Mind Others
Oldershaw et al. (2010.)

Reading the Mind
In

Reading the Mind
in VOICE

OK

Reading the Mind
in MUSIC

Moderate effects which other than eyes task improve after recovery
Zucker et al 2012

• Social motion ↓ sad ↓ fear ↑ anger
Evoked Potentials in emotional face processing (Hatch et al 2010)

Response: Which emotion?

↑/blue negative Electrodes P8-PZ

↓ Activation to explicit & implicit faces in occipital/temporal border. At admission and discharge
Impaired neural processing of social attribution in anorexia nervosa

(C McAdams a, Krawczyk 2011)

Videos of moving shapes “People: All friends? “Bumper cars: Same weight?”

Age 24 yr, BMI 19.7, 7/12 recovery
Impaired neural processing of social attribution in anorexia nervosa baseline- post weight gain

(Schulte-Ruther et al 2012)

- Adolescents <18y
- Pre/post 107/7 treatment
- ↓ ant med temporal lobe
- ↓ med PFC
- med PFC@ Outcome

Videos of moving shapes
“People: All friends?“ Bumper cars: Same strength?”
Imagine Body Checking

"Imagine you are doing what is shown in the pictures"

How anxious do you feel now?

AN < HC
AN ↓ medial prefrontal cortex (PFC), right fusiform gyrus
Traits in Eating Disorder

- Social Processing
- Emotional Expression
- Soothe by reward
- Threat sensitivity
- Social Defeat
People with eating disorders

• Are less accurate with theory of mind tasks.
• They do not activate brain areas associated with social cognition.
What does social and emotional functioning mean for care to individual and family?

- **What this means for the individual**
- ↑ attention to negative
- ↓ attention to the positive.
- Lack secure base- minor hassles ▶ trigger ↑ stress response
- **What this means for carers.**
- Share the same genes
- May have own attachment problems (Ward et al).
- ED ↑ stress (a tendency to adopt jelly fish or ostrich position).
What does social and emotional functioning mean for treatment?
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Emotional & Drive Systems
**Relationship Matters**

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*Therapeutic alliance*
*Martin et al 2000*

*Family context*
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Therapeutic alliance

Family context
- Oxytocin
- Compassion / emotion focus treatment
- Attentional bias training
Conclusion

• Social emotional difficulties precede onset.
• Starvation reduces social emotional functioning.
• The symptoms are frightening and frustrating for others.
Conclusion 2

• Carers can moderate isolation.
• Carers can model high level emotional regulation.
• Carers can listen and use high level theory of mind to understand.