ATTACHMENT AND THE ADOLESCENT BRAIN: PROMOTING THOUGHTFULNESS (MENTALIZING) FOR YOUTH (AND PARENTS AND OURSELVES)

EFRAIN BLEIBERG, MD  
Professor and Vicechair Menninger  
Department of Psychiatry and Behavioral Science, Director, Child and Adolescent Psychiatry, Baylor College of Medicine Senior Psychiatrist, Adolescent Treatment Program  
The Menninger Clinic  
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ebleiberg@menninger.edu
OBJECTIVES

- To review the process and skills involved in thoughtfulness (mentalizing) and its role in attachment and affect regulation.
- To understand the impact of brain development on the capacity for thoughtfulness (mentalizing) in adolescents.
- To learn the skills and attitudes that promote thoughtfulness (mentalizing) in individual, group, and family interventions and residential settings.
MENTALIZING

- What is it?
- How does it arise?
- Why does it matter?
Image what your world would be like if you were aware of physical things but were blind to the existence of mental processes. I mean, of course, blind to things like thoughts, beliefs, knowledge, desires, and intentions, which for most of us self-evidently underlie behavior.

Simon Baron-Cohen (1995)
MENTALIZING

Implicitly and explicitly interpreting (inferring) the actions of oneself and others as meaningful and intentional on the basis of mental states (e.g., desires, feelings, beliefs, needs, misconceptions)

* Normal ability
* Central to communication, relationships, adaptation, resilience
* Underpins therapeutic relationships
  - and therapeutic change (claim)
MENTALIZE!
ASPECTS OF MENTALIZING

Implicit / Automatic vs Explicit / Controlled

(non conscious, non-verbal, non reflective) vs (Conscious – or potentially conscious, verbalizable, reflective)

Affective vs Cognitive

External vs Internal

Self vs Other
The eye region can signal specific social information, such as guilt, fear or flirtatiousness and a CFP study found that abused children could not read these expressions which might predispose to certain PDs.
Mirror Neurons
Implicit / Automatic / Procedural Mentalizing

- Disposition to match (imitate) other people’s procedural displays
- Seeks affective / motoric / perceptual (procedural) match between one’s mental states and other people’s mental states
- What I know, everyone knows, what other’s know, I know
- Match is achieved through actions (manipulation)
- Generates psychic equivalence
Implicit / Automatic / Procedural Mentalizing
Psychic Equivalence

- Stored as patterns of affective / motoric / perceptual / physiological activation (implicit memory)
- Total certainty and intolerance of alternatives
- Non verbal and non reflective
The Nature of Attachment
ATTACHMENT

- Innate disposition to prefer, “fit”, seek proximity, form emotional ties and evoke protection, regulation and reciprocity
- Attachment is activated by pre-programmed cues signaling threats to survival
- Threats to infant’s survival activate a pattern of motor / vocal / emotional displays (procedural signal) that evokes protective, regulating responses from caretakers disposed to mentalize, reciprocate and teach
Attachment relationship ensures regulation and modulation of infant’s nervous system
Baby’s brain prewired to recognize and seek out a match between procedural signal and environmental outcome (contingent relation: “A” precedes “B” and “B” follows “A”)

Bigelow & Rochat, 2006
Gergely & Watson, 1996
Gergely, 2004
Evoking a contingent “match” as the basis of the procedural sense of self as agent

Evoking a contingent match as basis of internal working models of the self as effective and others as responsive, underlying secure attachment
Secure attachment reflects internal working model of traumatic situations as transitory and manageable through the effective actions of the self (agency) in evoking reciprocal responses from others.
The Mesocorticolimbic Dopaminergic Reward Circuit In Addiction Process

- Prefrontal/Cingulate Cortex
- Amygdala/bed nucleus of ST
- Caudate
- NAcc Core/Shell
- VTA
- Thalamus
- Ventral Pallidum

- Oxytocine
- Beta Endorphins
THE PROTOTYPE OF TRAUMA
(NARCISSISTIC VULNERABILITY)

Brain evolved a pre-wired encoding of survival of the self as predicated on another person’s contingent, procedural, matching response. Pre-wired (narcissistic) vulnerability triggered by absence of contingent response from others.
Lack of reciprocity (non-contingency) is a signal of threat to survival and evokes fight-freeze-flight.
Genetic mediation of anxiety, depression or aggression in response to trauma: Low levels of Mao A + trauma ➔ violence and ASP (Caspi et al, 2002; Widom & Brzustowicz, 2006); FKBPS polymorphism (↑ sensitivity of glucocorticoid receptors) + trauma ➔ dissociation and PTSD (Binder et al, 2008)
Developmental Trajectories of Childhood Disruptive Behaviors and Adolescent Delinquency (Broid, Nagin & Tremblay et al., 2003)

Data from 6 sites and 3 countries to examine the developmental course of physical aggression in childhood and to analyze its linkage to violent and nonviolent offending outcomes in adolescence.

- **Montreal sample (Canada):** 1,161 boys recruited at age 6, assessed annually from ages 10 to 17 years
- **Quebec provincial sample (Canada):** girls and boys, about 1,000 Yearly assessments from 6 to 12 years interviewed at 15
- **Christchurch Health and Development Study (New Zealand):** birth cohort of 1,265 children (635 boys and 630 girls) assessed at birth, 4 months, annually from age 1 to age 16, and at age 18
- **Dunedin Multidisciplinary Health and Development Study (New Zealand):** 535 boys and 502 girls, since the children were 3 years old. The latest assessment was at age 26
- **Pittsburgh Youth Study (United States):** 1,517 boys who initially were in Grades 1, 4, or 7 regularly followed up over 12 years
- **Child Development Project (CDP; United States):** multisite longitudinal study of 585 families (52% boys) a yearly basis, children, parents, and teachers
NICHD study: Trajectories of physical aggression from 24 months to age 9 (n=1,195)
6% of adolescent cohort responsible for 56% of 10,214 offenses perpetrated (Wolfgang, et al, 1972)

6% of young men commit 54% of violent crimes (Steiner & Stone 1999)
THE DEVELOPMENT OF VIOLENCE: THE FAILURE OF INHIBITION

- Violent trajectory is established early

- Evolution used attachment as a signal of the kind of environment to anticipate: An environment offering little reciprocity is likely an environment in which violence is necessary for survival
CONTINGENCY DETECTION, NARCISSISTIC WELL BEING, MENTALIZATION

Beginning of Mentalizing and Subjectivity

2: Order Representation of Internal State

Mentalizing

Resonance

Contingent, Attuned, Marked, Response

Signal

Caretaker

Constitutional Self: Attachment-Seeking, Contingency-Detecting

Temperament & Innate Basic Emotions

Baby

States
CARETAKER’S RESPONSE PROMOTES DEVELOPMENT OF EXPLICIT/SYMBOLIC/PRETEND MODE OF SUBJECTIVITY

- Mismatch (2/3 of the time) effort to find the “right” contingent, attuned match

- Attunement (1/3 of the time) is conveyed by displaying the procedural aspects and qualities of the infant’s internal state (the “architecture” of the internal state, D. Stern) re: affect quality, arousal level, tempo. This display, however, is expressed in a different behavioral mode (no imitation)

- Attuned display is marked by communicative cues such as eye contact (Farroni, et. Al., 2002); “Motherese” (Fernald, 1992; Cooper and Aslin 1990); High contingent-reactivity (Movellan and Watson, 2002); Empathic affect-mirroring (Bigelow, 1999; Gergely, 2004, 2007) that promote attention and learning in the infant; the pedagogical mechanism
CARETAKER’S RESPONSE PROMOTES DEVELOPMENT OF EXPLICIT/SYMBOLIC/PRETEND MODE OF SUBJECTIVITY cont’

- Attuned and marked displays promote uncoupling of overt behavior and internal state.

- Contingency-detection mechanism associates caregiver’s display (“This display is not my real internal state but my interpretation of your internal states) – contingent social feedback of the caregiver’s representation of the infant’s basic emotional state and the infant’s own procedural emotional state, promoting second order representation of internal states that makes them accessible to introspection, subjective experience and differentiation.
Learning About My Mind, Your Mind

Mind in mind → Contingent → Marked → Mirroring → Sam-I-am
Baron-Cohen’s (2005) model of the social brain

The Emotion Detector
- Left inferior frontal gyrus
- Mirror neurons

The Intention Detector
- Right medial prefrontal cortex
  - Inferior frontal cortex
  - Bilateral anterior cingulate
  - Superior temporal gyrus

Eye Direction Detector
- Posterior superior temporal sulcus

Shared Attention Mechanism
- Bilateral anterior cingulate
- Medial prefrontal cortex
- Body of caudate nucleus

The Empathizing System
- Fusiform gyrus
- Amygdala
- Orbito-frontal cortex

Theory of Mind Mechanism
- Medial prefrontal cortex
- Superior temporal gyrus
- Temporo-parietal junction

EMOTION UNDERSTANDING

BELIEF-DESIRE REASONING
The baby looks at his mother’s face and finds himself there

D. Winnicott

She thinks that I think, therefore I am

P. Fonagy
Theory: Birth of the Agentive Self

Attachment figure “discovers” infant’s mind (subjectivity)

Infant internalizes caregiver’s representation to form psychological self
Safe, playful interaction with the caregiver leads to the integration of primitive modes of experiencing internal reality ⇒ mentalization
**Theory: Birth of the “Alien” Self in Disorganized Attachment**

*The caregiver’s perception is inaccurate or unmarked or both*

**Attachment**

Absence of a representation of the infant’s mental state

**Child**

Internalisation of a non-contingent mental state as part of the self

The child, unable to “find” himself as an intentional being, internalizes a representation of the other into the self with distorted agentive characteristics which disorganizes the self creating splits within the self structure
Creating a Coherent Self-representation by Controlling and Manipulation – Hyper-activation of Attachment

Through coercive, controlling behavior the individual with disorganized attachment history achieves a measure of coherence within the self representation.
Marked and Unmarked Mirroring
Non-mentalizing (not having one’s mind in the mind of the other) activates alien self. Feeling alone and trapped with an “alien” (persecutory) presence inside.
MENTALIZING SELF vs OTHERS

- Developmental need to learn what is “me” as distinguished by what is assumed to be shared

- Second system: anterior front-medial cortex, anterior cingulate cortex and the temporo-parietal junction are areas involved in explicit / controlled mentalizing (perspective taking, self-referential processing, self-agency (Brass et al, 2005; Brass, and Haggard, 2008; Aichorn et al, 2006; Frith and Frith, 2006) inhibits automatic matching

- Sequence: initial imitative matching within mirror system interacts with the reflective, explicit / controlled mentalizing system to reduce and modulate the mirror system and the extent of primary identification (psychic equivalence) with the other
EXPLICIT/SYMBOLIC MENTALIZATION (Controlled)

* Declarative/Episodic/Semantic
* Representational/Autobiographical Narrative
* Conscious/Preconscious/Unconscious “Pretend Mode”

*Gallagher & Frith
Trends in Cognitive Sciences 7: 77-83, 2003
Explicit / Controlled / Representational

- Puts the brakes on matching: Effortful control of attention and the perspective of separate minds.
- Separation of the representation (mental model) and the procedural experience: “pretend” or “as if” vs “for real”
Regions of the social brain

medial prefrontal cortex (mPFC), temporo-parietal junction (TPJ), posterior superior temporal sulcus (pSTS), amygdala, anterior cingulate cortex (ACC), anterior insula (AI), inferior frontal gyrus (IFG) and interparietal sulcus (IPS) (Sebastian, Viding, Williams et al 2009)
Explicit / Controlled / Representational Mentalizing

- From matching to coherence
- Stored as explicit (episodic, semantic) memories
- Conscious or potentially conscious
- Generates representations organized with the narrative structure of a story – seeks coherence
- Can be verbalized
- “Extracts” themes and meaning from episodic memories to generate semantic memories
- Autobiographical narrative
NEUROBEHAVIORAL SYSTEMS

- Dopamine: attention, agency, reward for “matching” and assertiveness
- Oxytocine, vasopressin, endogenous opioids: attachment and affiliation, ↓ pain and stress
- Serotonin: neuromodulation and constrain of arousal, aggression
- Norepinephrine, corticotrophin – releasing hormone, cortisol: anxiety, flight, fear
Implicit / Automatic vs Explicit / Controlled

- Amygdala, basal ganglia, ventromedial pre-frontal cortex, dorsal anterior cingulate cortex
- Older circuits relying on sensory information (external)
- Perceived, felt, procedural, non-conscious, non-verbal, unreflective.
- Fast, requires little effort, focused attention or intention
- Facilitated by arousal

- Lateral prefrontal cortex, medial prefrontal cortex, lateral parietal cortex, medial parietal cortex, medial temporal lobe, and rostral anterior cingulate cortex
- Newer circuits involved in linguistic and symbolic processing (internal)
- Interpreted verbal conscious (or potentially conscious), verbal and reflective
- Slower, sequential, requires attention, intention and effort
- Inhibited by arousal
Mentalizing Implicitly & Explicitly

**Implicit/Automatic**
- Perceived/Felt/Acted
- Emotional Resonance
- Empathy (Match)
- Non conscious
- Procedural
- Non verbal
- Non Reflective

**Explicit/Controlled**
- Interpreted
- Explained
- Perspective
- Conscious (or potentially conscious)
- Can be verbalized
- Reflective (coherence)

- Functional integration at age 4
- dissociation under \( \uparrow \) arousal (flight – or – flight)
A biobehavioral switch model of the relationship between stress and controlled versus automatic mentalization (Based on Luyten et al., 2009)
DEVELOPMENT OF MENTALIZATION

3 – 6 Years

- Use of mental state words
- Sensitivity to parent’s mental states
- No autobiographical narrative
- Mental states have implications for others: integration of psychic equivalence and pretend mode (false beliefs, capacity to deceive, understanding misunderstandings)
DEVELOPMENT OF MENTALIZATION

6 - 12 Years
- Play, straddling multiple self-states and negotiating self – other perspectives
- The autobiographical narrative
- Growing understanding of self conscious emotions (internal match of actual self and model) such as guilt, shame
- Concept of fairness and justice (Fehr et al 2008, Nature, 545, 1079 – 1083)
HYPOTHESIS

- Mentalizing evolved as a safety-signaling mechanism providing the representational means to anticipate and adaptively influence the course of attachment interactions with particular caregivers and other interactive partners.

- The decision to trust: when, how much and whom to trust and seek attachment and reciprocity and when, how much and whom not to trust and activate instead a defensive/competitive mode.
The trick, as always, the key to human success... is to be selective in your mercies.

Ian McEwan
Mentalization

Fight-Freeze-Flight

Arousal Regulation

Affect Regulation

Attachment

Self
Implicit
Explicit
Other

Implicit

Explicit
THE RUPTURE AND REPAIR OF COOPERATION IN BORDERLINE PERSONALITY DISORDER

King-Casas, B; Sharp, C; Fonagy, P; Montague, R.;

Compares normal, psychiatric controls and BPD patients to identify neural activation patterns in a trust task.
Investor Reciprocity

Fraction sent to partner

2 rounds back | 1 round back | now

benevolent | neutral | malevolent

Investor reciprocity signal change

0 | 0.1 | 0.2 | 0.3

T(279)


g = 20

p < .005

p < .05

Human Neuroimaging Laboratory, Baylor College of Medicine
Figure 3

A

B

Early rounds

Late rounds

Investor MCC x trustee ACC

Investor MCC x trustee caudate

Approx 14 s shift

Trustee ACC x trustee caudate

14 s shift

Correlation coefficient vs. time shift of investor MCC (sec)

Correlation coefficient vs. time shift of investor MCC (sec)

Correlation coefficient vs. time shift of trustee ACC (sec)
COMMON REGIONS OF DEACTIVATION WITH MATERNAL AND ROMANTIC LOVE (BARTELS & ZEKI, 2004)
ATTACHMENT AND THE DEACTIVATION OF THE SOCIAL JUDGMENT NETWORK

- Both maternal and romantic love elicit an overlapping set of deactivations
  - temporal poles, parietotemporal junction and anterior paracingulate in prefrontal cortex ➔
    - social trustworthiness, moral judgements, ‘theory of mind’ tasks, solely negative emotions, attention to own emotions
      - underpin determining other people’s emotions and intentions

- Activating the attachment system:
  - Reduces the need to assess the social validity of that person (‘love is blind’)
  - Ability to judge mental state in self and other
Activation in the anteromedial caudate body was correlated with the passionate love scale (PLS) scores of participants. A: caudate location for the correlation (arrow). B: correlation of activity in the caudate with PLS scores. Location of responses shown in graph are given in Talairach coordinates. C, caudate; L, left side.
- Partial deactivation of mentalizing (assessment of intentions)

- Activation of reward circuit (meso-cortico-limbic dopaminergic circuit)

- Partial deactivation of negative, distancing affects (anger, shame, disgust)
ATTACHMENT

• Self
• Other
Fight-Freeze-Flight

Affect Regulation  \rightarrow  Mentalization \rightarrow  Arousal Regulation

Mentalization  \rightarrow  Arousal Regulation

Attachment

Affect Regulation

Mentalization

Arousal Regulation

Attachment

Self  \rightarrow  Other

Implicit  \rightarrow  Explicit
FIGHT - OR - FLIGHT

• Self
- Dissociation of explicit/pretend mentalizing and implicit/psychic equivalence mentalizing

- Loss of access to one’s and other’s subjectivity
AGENCY, REFLECTION, CONECTION

- Assess when security is needed and when is not and flexibly shift between attachment and non-attachment
- Confidence in one’s agency and other’s (mentalizing) responsiveness
- To see oneself from the outside and to see others from the inside → talk so others can listen and listen so other can talk
When Mentalizing is working
Successful Mentalizing-I: Self-Representation

- **A rich, agentive, internal life**
  This is characterized by the person rarely experiencing their mind as being empty or content-less, but feeling real, alive and aware of the link between one’s actions and one’s intentional mental states ("ownership" and responsibility for one’s actions vs my behavior “happens” to me).

- **Autobiographical continuity**
  This is the capacity to remember oneself in the past and to experience the continuity of internal states, in spite of one’s changes.

- **Advanced explanatory and listening skills**
  These denote the person’s ability to explain things to others and the person with these skills is experienced by others as patient, able to listen and to comprehend (talk in ways others can listen and listen in ways others can talk).
Successful Mentalizing-II:

7 STRENGTHS of Perception of one's own mental functioning

1. Taking a developmental perspective
   - This refers to the ability to appreciate that one's perspective of self and others, as well as other people's perspective of themselves and others, changes as they develop and as maturation and experience provide tools to perceive, think and feel in more complex ways. For example, Mark Twain's statement that "when I was a boy of fourteen, my father was so ignorant I could hardly stand to have the old man around. But when I got to be twenty-one, I was astonished at how much he had learned in seven years".

2. Awareness of internal conflict
   - This refers to the capacity to recognize that our thoughts and feelings are complicated and may contain multiple, contradictory, and at times incompatible wishes and intentions.

3. Self-inquisitive stance
   - This refers to a stance of curiosity about one's own thoughts, feelings, and perspective, as well as about other people's perspective and the ways their minds work. This curiosity and interest in differences relates to the openness to question one's assumptions.

4. Realistic skepticism and the playful stance
   - This refers to the recognition of the potential errors, foibles, and even absurdity of one's perspective, and a readiness and ability to engage others in playful exchanges that allow for an immersion in mutually acknowledged and enjoyable "pretend" scenarios. (see M. Twain)

5. Awareness of the impact of affect
   - This involves a capacity to "take a step back" and recognize the impact of emotional states on our perspective of ourselves and of others.

6. Acknowledgment of un- or pre-conscious mental states
   - This involves an appreciation and a capacity to tolerate not knowing all aspects of what one thinks and feels and not even fully appreciating one's own intentions.

7. Belief in changeability
   - This involves an appreciation that one's thoughts and feelings are not fixed like physical objects but can be transformed in multiple ways as a result of changes in perspective and exchanges with other people's minds.
Successful Mentalizing-III:
7 STRENGTHS of relational capacity

1. Curiosity / openness of genuine interest
   This refers to an attitude of interest in other people’s thoughts and feelings and respect for the perspectives of others. It is also characterised by an expectant attitude that one’s understanding will be elaborated or expanded by what is in another person’s mind. It also implies openness to discovery and a reluctance to make assumptions, or hold prejudices, about what others think or feel.

2. The stance of safe uncertainty (Mason 2002) – also referred to as ‘opaqueness’:
   This refers to the open acknowledgment that one frequently does not know what other people are thinking, without being completely puzzled or overwhelmed by what happens in the mind of others. This stance is based on a general sense that the reactions of others are to some extent understandable, given the knowledge one may have of what others think and feel.

3. Contemplation and reflection:
   This refers to the desire to reflect on how others think in a relaxed rather than a compulsive manner.

4. Perspective-taking:
   This is a stance and attitude which is characterized by the acceptance that the same event or experience can look very different from different perspectives, which tend to reflect individuals’ different experiences and histories.

5. Forgiveness:
   This refers to the understanding of people’s actions based on understanding their mental states. An example of this is the dissipation of one’s own anger once one has understood why the other person had acted as they did.

6. Impact awareness:
   This refers to the awareness of how one’s own thoughts, feelings and actions impact others.

7. A non-paranoid attitude:
   This describes the stance whereby the individual does not assume or expect that the thoughts of others are a malevolent or threatening and having in mind the possibility that minds can be changed.
When Mentalizing goes awry
Failure of Mentalizing

- Current ‘insurmountable’ life challenges
- Excessive demand for excellence
- Becoming adult
- Rejection

Activation of attachment system

Disruption of mentalization

Stress reaction (fight/flight)

Genetic & early environmental influence

Psychic equivalenc

Teleologic thinking

Pretend mode

The disorganized self

Indications that mental event (thought, belief or wish), while recognised as internal, has same status as physical reality. Living in the cognition, rather than cognitions living in mind.

Indications that subjectivity is completely separated from physical reality. Pervasive self-deception, Rejection of alternative realities that threaten pretend mode...

Indications that physical action is seen as the only way to alter mental state

Genetic & early environmental influence

History of physical maltreatment

CSA

Adverse parenting

Slide by Peter Fonagy
3 Modes of Subjectivity that Antedate Mentalization and Can Characterize its Failure

1. Psychic Equivalence:
   - Mind-world isomorphism; mental reality = outer reality; internal has power of external
   - Associated with insufficiently marked mirroring
   - Experience of mind can be terrifying (flashbacks)
   - Intolerance of alternative perspectives ("if I think you had your door shut because you want to reject me, then you want to reject me")
   - Self-related negative cognitions are TOO REAL!\textsuperscript{73}
3 Modes of Subjectivity that Antedate Mentalization and Can Characterize its Failure

2. Pretend mode:

➢ Ideas form no bridge between inner and outer reality; mental world decoupled from external reality
➢ Associated with non-contingent mirroring
➢ Linked with emptiness, meaninglessness and dissociation in the wake of trauma
➢ In therapy endless inconsequential talk of thoughts and feelings
  o Simultaneously held contradictory beliefs
  o Affects that do not accompany thoughts
3 Modes of Subjectivity that Antedate Mentalization and Can Characterize its Failure

3. **Teleological stance:**
   - Expectations concerning the agency of the other are present but these are formulated in terms restricted to the physical world.
   - A focus on understanding actions in terms of their physical as opposed to mental outcomes.
   - Patients cannot accept anything other than a modification in the realm of the physical as a true index of the intentions of the other.
     - The therapist’s benign disposition, her motivation to be helpful, has to be demonstrated by increasingly heroic acts,
     - Availability on the telephone ➔ extra sessions at weekends ➔ physical touching ➔ holding ➔ serious violations of therapeutic boundaries.
Social Cognition and The Teen Brain: Insights from Imaging

Jay N. Giedd, MD
WHITE MATTER vs GRAY MATTER

**White Matter**
- Linear increase
- Not different by region

**Gray Matter**
- Inverted “U”
- Regionally specific (Decrease in frontal and parietal lobes)
BRAIN DEVELOPMENT IN HEALTHY CHILDREN & ADOLESCENTS

Longitudinal and Cross-Sectional Data
(243 Scans from 145 Subjects)

Frontal Gray Matter

![Graph showing the volume of frontal gray matter against age in years.](image-url)
INCREASED VULNERABILITY TO CONTINGENT MISMATCHES IN ADOLESCENCE

- Body Changes
- Hormonal Effects
- Sexuality
- Psycho-social Demands
- Family Change
- Peer Culture
Development of the SIPN
Social Information Processing Network
(Nelson et al, 2005, Psychological Medicine, 35, 163-174)
Adolescents are biased more by functionally mature limbic regions during adolescence (imbalance of limbic relative to prefrontal control), compared to children, in whom these systems are both still developing, and adults, in whom they fully mature.
HYPOTHESIS

Adolescence evolved in response to adaptive pressures to develop specialized pathways to mentalize in order to create use – dependent networks to regulate narcissistic vulnerability – how, when, whom to trust and enter into reciprocity, or compete, avoid and, become defensive etc. with top-down regulation of the quality and intensity of affect and arousal
TEENS AND ADULTS PROCESS EMOTIONS DIFFERENTLY

- Adults and teen subjects have been shown to process emotions differently, they use different areas of their brain to recognize feelings.

- Many teen subjects failed to interpret the emotion in faces like this one as fear.
ACTIVATION OF THE ACC AND AMYGDALA IN ADOLESCENTS RELATIVE TO ADULTS WHEN PASSIVELY VIEWING FEARFUL MINUS NEUTRAL FACES*

When reading emotion, teens (left) rely more on the amygdala, while adults (right) rely more on the frontal cortex.

Deborah Yurgelon-Todd, 2000
DECISION MAKING WITH RISK
(Baird et al., 2005)

- “Is swimming with sharks a good idea?”, YES/NO
  - Adolescents take longer to say it is not a good idea

- At brain level
  - **Adults**: activation of insula and right fusiform face area
  - **Adolescents**: activation of the dorsolateral pre-frontal cortex

- Efficient in adults because driven by mental image of possible outcomes and **visceral response** to those images in line with somatic marker hypothesis (Damasio, 1996)

- Adolescents make use of less well developed **reasoning capacities** and therefore activate DLPFC
HYPOTHESIS

- Increased vulnerability to increased arousal and contingent mismatches
- Decreased capacity to integrate explicit / controlled and implicit / automatic mentalizing
- Increased vulnerability to adaptive breakdown, psychiatric disorders and emerging P.D.
A PROPOSED DEVELOPMENTAL TRAJECTORY: HYPERBOLIC TEMPERAMENT

- Affective dysregulation
  - Highly polarized, environmentally (relationally) responsive, rapidly reversible shifts in affect (differences with mood disorders present in 10-15% of adult BPD)

- Impulse Dyscontrol
  - A lower threshold for activation of impulsive motoric responses, value short-term reward over long-term harm (impulsive choices) a heightened disposition to explode with rage, and a proneness to self-harm, recklessness and addictive patterns (promiscuity, drug abuse, eating disordered behavior, self-mutilation)
A PROPOSED DEVELOPMENTAL TRAJECTORY

- Supersensitive babies (Kagan)
  - Physiological and affective hyper-reactivity to changes, separations and mismatches predictor of social phobia and shyness
- Exceptional sensitivity to matching or mismatching and lack of reciprocity?
- Hyper-reactive, “hyperbolic” infants more difficult to match
<table>
<thead>
<tr>
<th>Supersensitive Baby</th>
<th>Normal Baby</th>
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<tbody>
<tr>
<td><strong>Shy, Inhibited</strong></td>
<td><strong>Normal</strong></td>
</tr>
<tr>
<td><strong>Exceptional Social Skills - Leader</strong></td>
<td><strong>Normal</strong></td>
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<td><strong>“Super Mother”</strong></td>
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<tr>
<td><strong>Normal Mother</strong></td>
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A PROPOSED DEVELOPMENTAL TRAJECTORY cont’

- Mismatch of infant’s temperament and caregiver’s with similar temperament and /or traumatic histories

- Caregivers respond to their hypersensitive children’s signal of distress and hyperarousal with fight-or-flight
ADULT ATTACHMENT PREDICTS MATERNAL BRAIN AND OXYTOCIN RESPONSE TO INFANT CUES

3rd trimester visit: Pregnancy
7 month visit: Videotaping
10 month visit: Scanning
Visit 4: Follow-Up

Study Timeline

Data Collected

- AAI
- Demographics
- PDQ
- BDI
- PANAS (1)
- Demographics
- ATQ
- Infant face images
- Oxytocin change
- Cortisol
- Adrenaline
- Noradrenaline
- PANAS (2)
- IBQ
- PSI
- WTAR
- Breastfeeding duration
- Hours separated per week
- Bayley Scales of Infant Development

Adult Attachment Interview (AAI)

Type B: (Secure): values attachment, coherent balanced account of experiences

Type A: (Insecure): deny experiences (can’t remember), devalue (denigrate)

Strathearn, Fonagy, Amico & Montague (2009) Neuropsychopharmacology, 34
<table>
<thead>
<tr>
<th>STIMULUS TYPES</th>
<th>IDENTITY</th>
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<tbody>
<tr>
<td></td>
<td>Own Infant</td>
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<tr>
<td>AFFECT Happy</td>
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<td>Neutral</td>
<td>ON</td>
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<td>Sad</td>
<td>OS</td>
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Maternal security and hemodynamic change

**A**

mPFC

y=11

x=-6

Anterior Insula

y=6

y=16

**B**

R Ventral Striatum

Type B (Secure)

Type A (Insecure)

R Insula
Maternal brain response to own baby’s sad face, comparing attachment groups.
Mothers' brain responses to their infant’s expression of emotion are strongly associated with their working models of attachment relationships.

- Mothers who value attachment (secure adult attachment pattern) show preferential activation of the nucleus accumbens and medial prefrontal cortex bilaterally, when seeing their own babies' happy faces.

- “Secure” mothers also activated the nucleus accumbens on viewing their own baby's crying faces.

- "Insecure/ dismissing" mothers seemed to mirror their own baby's negative affect, with more activation of the insula.
DISORGANIZED ATTACHMENT

Enfeebled Mentalizing
Disorganized Attachment

↑ Arousal
“Fight”- Freeze - or - Flight

Dissociation of Implicit/Procedural And Explicit/symbolic

Procedural Experience Of Arousal/Distress

Physical, Self and the Contingency Detection Mechanism

↑ Arousal/Distress

Baby

No Response (Neglect) Or Noncontingent, Unattuned Response

Signal

Fight – or - Flight
Resonance

Caretaker

![Graph showing the relationship between arousal and performance with two types of capacities: Prefrontal capacities and Posterior cortex and subcortical capacities. The graph highlights the changing switchpoint threshold and points 1 and 1a.]
DISORGANIZED ATTACHMENT

- Coercion and control in both child and caretaker: fight-or-flight activated when attachment partner deviates from matching
- Increased odds of maltreatment: physical, emotional, sexual abuse
A PROPOSED DEVELOPMENTAL TRAJECTORY cont’

Key adaptation in adolescence:

- Active inhibition of mentalizing and dissociation in an attachment context

- Loss of self-coherence without contingent match: absence threatens coherence but presence activates attachment and fight-or-flight
Coexistence (side by side) Of Psychic Equivalence And Pretend Mode

- Can not inhibit or moderate “shared” state of mind (psychic equivalence): what is in my mind is “for real”; insistence (coercion, manipulation) on a procedural match (or I feel that I fall apart, will die”: the activation of the alien self)

- Nothing feels “for real” (pretend mode): disconnection from one’s agency and intentionality (“my behavior happens to me”); disconnection from one’s subjectivity (numbness, emptiness) and other’s subjectivity (aloneness); pain and dread can not be described (feel damaged, rotten, helpless, hopeless, betrayed, overwhelmed)
Coping With Inhibited Controlled Mentalizing

- Teleological mode and the primacy of the physical and observable
- Physical, addictive patterns to create internal match (drugs, self harm, sex, eating disordered behavior)
- Coercive efforts to create contingent, procedural responses in others
A SELF-REINFORCING AND A SELF-PERPETUATING TRAJECTORY

- Non-mentalizing, coercive behavior and fight-freeze-flight and dissociation evokes non-mentalizing, coercive behavior in others.

- Coercive cycles are self-reinforcing and self-perpetuating.
VICIOUS CYCLES OF MENTALIZING PROBLEMS WITHIN THE FAMILY

Powerful emotion

Frightening, undermining, frustrating, distressing or coercive interactions

Person 1

Inability to understand or even pay attention to feelings of others

Try to control or change others or oneself

Others seem incomprehensible

Poor mentalising

Frightening, undermining, frustrating, distressing or coercive interactions

Person 2

Inability to understand or even pay attention to feelings of others

Try to control or change others or oneself

Others seem incomprehensible
OBJECTIVES

- Engage in treatment and manage crisis
- Shift coercive cycles and addictive non-mentalizing patterns to mentalizing interactions – remoralization – 3 - 6 weeks
- Provide targeted pharmacological and psychotherapeutic treatment for specific neuropsychiatric dysfunction (which reinforce and are reinforced by inhibited mentalization) – remediation – 4 – 12 weeks
- Reduce self-damaging, threatening and suicidal behavior
OBJECTIVES

- Promote mentalization in the presence of cues to inhibit it – in self and in relationships
- Initiate virtuous cycles in treatment and in relationships to reinforce the rehabilitation of mentalization, adaptive coping and secure attachments – rehabilitation of mentalizing – 12 – 24 months
Deploying Mentalizing in Treatment

- A mentalizing formulation: Mentalizing strengths and the contexts in which mentalizing breaks down
  - Explicit mentalizing: Psychoeducation
  - How to be: The Mentalizing therapist’s stance
  - Where to be: The mentalizing loop
- What to aim: The mentalizing spectrum of interventions
The Therapeutic Bargain
What is on the table?

- Maladaptive behavior provides some comfort and an illusion of control, safety and attachment.
- The *choice* to relinquish non-mentalizing behavior requires enormous courage from the child and the rest of the family.
- All children and families seeking help wish to change and recognize the price they pay for their efforts to cope.
- Even the most motivated are reluctant to give up the ways they know to gain safety, control and attachment.
The Therapeutic Bargain

Taking the risk of attempting new ways to communicate, cope and relate in order to replace a non-mentalizing illusion of control and attachment with a mentalizing approach that offers the opportunity for real mastery and genuine attachments
Spot Mentalizing & Non-Mentalizing

- “I’m not yelling”- [Video]
CORE FEATURES

1. Basic good practice
2. The therapist’s stance – 4 legs (how to be)
3. Explicit mentalizing – Psychoeducation
4. The mentalizing loop – 3 + 3 stations (where to be)
5. Formulating and planning – 2 directions (where to go)
6. The spectrum of interventions – 6 levels (a framework how to get there)
Core Features (1)
Basic Good Practice

- To show respect, warmth and sensitivity for each family member
- To be inclusive of all family members
- To identify and highlight strengths, including in particular, mentalizing strengths
- To aim for more positives (5:1 ratio)
- To encourage interaction, communication, explaining one’s perspective
- To avoid blame, contempt, defensiveness, stonewalling (the 4 horsemen of mentalizing apocalypse)
- To positively connote current situation and roles as each family’s member best effort to adapt to their circumstance and experience
- To provide clear boundaries
- To speak with confidence of MBT and its aims
Core Features (2)
The Therapist’s Stance – 4 Legs

1. The Inquisitive stance
2. Holding the balance
3. Intervening to interrupt non-mentalizing
4. Highlighting and reinforcing positive mentalizing.
Core Features (2)
The therapist’s stance – 4 legs

1. The Inquisitive Stance: Constantly affirming the value of Mentalization

- Inquiring
- Respectful
- Curious
- Tentative stance.

MBFT particularly emphasises that it is important for therapists to reflect a view that understanding the feelings of others is important, including what those feelings might be and what thoughts, meanings and related experiences are attached to them.
THERAPIST’S STANCE

- Not-Knowing
  - Neither therapist nor patient experiences interactions other than impressionistically
  - Identify difference – ‘I can see how you get to that but when I think about it it occurs to me that he may have been pre-occupied with something rather than ignoring you’.
  - Acceptance of different perspectives
  - Active questioning
  - Eschew your need to understand – do not feel under obligation to understand the non-understandable.

- Monitor you own mistakes
  - Model honesty and courage via acknowledgement of your own mistakes
    - Current
    - Future
  - Suggest that mistakes offer opportunities to re-visit to learn more about contexts, experiences, and feelings
PROMOTING MENTALIZING

- Inquisitive, curious, “not knowing”
- Invites to explore mental states – their own and others, including yours
- Engagement – not too hot nor too cold
- Contingent, marked responsiveness
- Simple and to the point
- Balance self-other, implicit-explicit
- Invite multiple perspectives
- Acknowledge what you do not know and enlist patient for help
- The here-and-now- shows mind in action-live
- Validate before offering alternative
- Challenge unsubstantiated assumptions
- Judicious self-disclosure
- Acknowledge own mentalizing failures and mistakes
AVOID UNDERMINING MENTALIZING

- Try to be clever
- Complicated, long interventions
- Psychobabble
- Theory-based assumptions
- Certainty
- Attribute patient’s experience to general pattern rather than specific detail
- Long silence, non-contingency
- Transference to explore unconscious repetitions of past
Core Features (2)
The therapist’s stance – 4 legs

2. Holding the balance

Balance is the key to mentalizing

- Between implicit/procedural/automatic and explicit/reflective/controlled; self and other
- Between too much and too little arousal; too close and too distant (Goldilocks Principle)
- “Natural” interactions vs interventions that seek to promote change. The task of the therapist:
- Strike a careful balance between promoting “natural” interactions around problematic issues and intervening at critical moments to highlight how miscommunication or misunderstanding maintain problems
3. Intervening to interrupt non-mentalizing interactions.

- The MFBT model presumes that non-mentalizing interactions are unlikely to produce significant changes in family interactions, so simply allowing these interactions to occur is unlikely to be therapeutic.

Once the therapist has:

- A clear idea of the nature of the core mentalizing problems
- A good example of such an interaction to work with

The therapist...

- Intervenes and shifts attention away from "preferred non-mentalizing narratives" ("Fillers").
- The practical application of this intervening is the MBFT-Loop.
- The overarching aim is to highlight the missing perspective for each person in the family that leads to the behaviour of others not being fully understood. It is the therapist’s task is to help create new and different perspectives.
Core Features (2)
The therapist’s stance – 4 legs

4. **Highlighting and reinforcing positive mentalizing**

- The therapist aims to deepen people’s ability to connect feelings, thoughts and intentions, and in order to do so:
  - Searches actively for examples (or episodes) of good mentalization
  - Positively connotes these
  - Enlarges upon them
  - “When you did x, I was very impressed by how you each tried to get your heads around this…. Father, you did x; mother, you did y; Johnny you did ....”
Workbook

1. Introduction
   - How we think about treatment
   - Invitation to engage
   - Offering a roadmap to the process
   - What is mentalizing
   - Mentalizing and resilience
     - Agency
     - Reflection
     - Connection
2. Getting started: paying attention to interactions and mental states: a “hands-on” and “minds-on” approach

- The interaction log
- Practice recognizing metalizing in interactions (parents and teens)
- Practice recognizing nonmetalizing (and pausing to interrupt / slow down nonmetalizing) parents and teens
- Weekly review with treatment team
Explicit Mentalizing Group
(Separate Groups for Parents and Teens

- **Exercises**
  - Are arranged in a sequence progressing from emotionally ‘distant’ scenarios to some which are more personalized.
  - Are related to personal experience only when the group have developed a cohesive atmosphere and some trust has been established between participants. Are developed to ensure that there is a focus on ‘self’ or ‘other’ and on the perceptions and experiences of others about self or self about others.
  - Move between explicit and implicit mentalizing.
Explicit Mentalizing: Introductory session

- **Method**
  - The group leader begins with an introduction to the concept of mentalizing covering a number of areas

- **Discussion**
  - Consider times when someone else has lost the capacity to mentalize (note that this is often easier for patients than being asked to describe a situation in which they have lost the ability).
    - Ask how the person regained his capacity
    - Ask the group to comment on each others stories
    - Only personalize the discussion if you feel that the group have become cohesive and it is safe to make it more intimate.

- **Alternatives**
  - Ask someone who has been in the group for a number of sessions to define mentalizing and to expand on his definition.
Core Features (3)
The MBFT-Loop

- Notice And Name
- Checking
- Checking
- Mentalize The Moment
- Generalize (and Consider Change)
- Checking
Group Therapy

- Monitor level of arousal in the group (not too hot, not too cold)
- 2 therapists, one can monitor individuals.
- Interventions that promote mentalizing:
  - Ask for clarification and elaboration: “How X makes you feel Y”
  - Ask other patients how they understood what was said
  - Generalize: “any one else experienced, felt, thought that ?”
  - If the group ignores and emotionally loaded issue, introduce: “Pause & Search”
Group Therapy

- Generate group culture of curiosity about motivations of one’s behavior and the behavior of others
- Insist patients consider others’ perspective and try to understand other people’s point of view
- Question certainty and rigidity
- Express therapist's feelings regarding something that interferes with the group's progress
Formulation: Content

- Positive aspects: when mentalizing worked to improve situation
- Components of treatment: individual, group, family medication – designed to promote and/or practice mentalizing
The Therapeutic Bargain

Taking the risk of attempting new ways to communicate, cope and relate in order to replace a non-mentalizing illusion of control and attachment with a mentalizing approach that offers the opportunity for real mastery and genuine attachments.


