Mood Tracking: My Key to Managing Bipolar Disorder

Michael Caruso, MS
May 4th, 2015
What is Bipolar Disorder?

- Mood Disorder
  - Affects personal experiences of emotion
  - Alters affect
- Bipolar

Euthymia

Mania  Depression
What Triggers Mood Episodes?
Positive and Negative Life Events

Stress

Circadian Rhythm Disruption
Emotional Dysregulation
Salience Network

How do we choose what is relevant to guide our behavior?
Emotional vs Executive Control

Executive Control
- Decreased Responsiveness

Emotional Control
- Increased Responsiveness

(Salience Network)

Maletic and Raison 2014
HPA Axis

Hypothalamus

CRF

Pituitary gland

ACTH

Adrenal glands

Cortisol

Physical Stress Response
Flip in Network Control During Stress Response

Hermans et al. 2014
Mood Tracking
**Monday, April 27, 2015**

<table>
<thead>
<tr>
<th>Rate Your Mood Today</th>
<th>Rate the Quality of Your Sleep</th>
<th>How Long Did You Exercise Today?</th>
<th>Did You Take Your Medications?</th>
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</thead>
<tbody>
<tr>
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<td>10</td>
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<tr>
<td>Very Depressed</td>
<td>Very Poor</td>
<td>Minutes</td>
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<td>Very Elevated</td>
<td>Great Sleep</td>
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**Core Data**

**Notes**

**Stay Well Strategies**

- Adequate Sleep
- Exercise
- Relaxation/Meditation
- Healthy Meals
- Professional Support
- Social Support
- Alternative Therapies
- Routine Day
- Enjoyable Activities
- Activities With Others
- Positive Thinking
- Looking Outwards

**Triggers**

- Stress at Work
- Stress at Home
- Lack of Sleep
- Lack of Exercise
- Too Much to Do
- Negative Self Talk
- Relationship Problem
- Arguing
- Caffeine Consumption
- Alcohol Consumption
- Poor Diet
- Recreational Drugs
- Medicine Not Taken
- Ill-health or Pain
- Difficult Life Changes
- Workplace Changes
- Change in Treatment
- Change in General

**Symptoms**

- Irritability
- Anger
- Sadness
- Anxiety
- Feeling Guilty
- Feeling Hopelessness
- Feeling Worthless
- Negative Self Talk
- Insufficient Sleep
- Excessive Sleep
- Loss of Energy
- Loss of Interest
- Suicidal Thoughts
- Poor Concentration
- Relating Poorly
- Loss of Libido
- Change of Appetite
- Behind with Housew...
Basic Variables

- **Rate Your Mood Today**
  - 1: Very Depressed
  - 10: Very Elevated

- **Rate the Quality of Your Sleep**
  - 1: Very Poor
  - 10: Great Sleep

- **How Long Did You Exercise Today?**
  - 0-60+ Minutes

- **How Many Hours Did You Sleep?**

- **Did You Take Your Medications?**
  - Yes
  - No
  - N/A

In-app Plotting

- **Exercise**
- **Your Mood**
- **Turbulence**
- **Sleep Hours**
- **Sleep Quality**
Mood

5: Baseline mood

4: Bad day, negative attitude

3: Constant negativity, slow thinking
   Feelings of worthlessness

2: Difficulty accomplishing daily tasks
   Suicidal thoughts, highly self critical

1: Unable to function, constant thoughts
   of suicide, possible plan, no hope

0: Catatonic, enacting plan of suicide
Mood

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0: Catatonic, enacting plan of suicide
Mood

10: Unbearable mental anguish, incapacitated

9: Unable to focus, use physical pain to distract, unable to rest

8: Buzzing, mind too fast for body, can be angry and irritable

7: Rapid speech, feeling unstoppable, expansive, highly elevated

6: Great day, very positive, high confidence

5: Baseline mood
Turbulence

10: Constantly cycling mood, difficult to function, disorientation

6-9: fluctuation between extreme mood states or rapid-fire change between similar states

5: Cycling begins to interfere with daily life

2-4: Generally corresponds to normal daily fluctuations in mood

1: Constant mood
Sleep

Sleep Cycle

[Graph showing sleep cycle with time range from 02 to 08]
Did You Take Your Medications?

- Yes
- No
- N/A

Triggers
- Hospital/Indisposed
- Stress Level
- Change in Treatment
- Caffeine Consumption
- Alcohol Consumption
- Black Out
- Sexual Contact
- Ill-health or Pain
### Symptoms

<table>
<thead>
<tr>
<th>Symptom</th>
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<tbody>
<tr>
<td>Agitation</td>
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<tr>
<td>Irritability</td>
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<tr>
<td>Anger</td>
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<tr>
<td>Racing thoughts</td>
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<tr>
<td>Racing Speech</td>
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<tr>
<td>Hyperkinesis</td>
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<tr>
<td>Energized</td>
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<tr>
<td>Euphoria</td>
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<td>Fatigue</td>
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<tr>
<td>Exuasion</td>
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<tr>
<td>Anxiety</td>
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<tr>
<td>Food Anxiety</td>
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<tr>
<td>Binge Behavior</td>
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<td>Panic Attack</td>
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<tr>
<td>Dissociation</td>
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<td>Disorientation</td>
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<tr>
<td>Poor Concentration</td>
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<tr>
<td>Sadness</td>
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<tr>
<td>Unhappiness</td>
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<tr>
<td>Slow Scale</td>
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<td>Suicidal Thoughts</td>
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2013

- Identify when I’m in an episode - HUGE - and how long it lasts
- Realize that I rapidly cycle
- Develop emotional discounting behaviors
- Motivated me to talk to others and build a support network
• Psychiatrist appointments became more collaborative
• Delved deeper into my recorded information to better understand my disorder
• Began using data to inform my treatment choices
• In-depth journaling to understand emotions and triggers
Michael Caruso 2014 Mood Analysis

Mood Value Histogram

- Manic: 9%
- Euthymic/Turbulent: 11%
- Euthymic: 58%
- Depressed: 22%

5 mood with 5 or greater turbulence
Michael Caruso 2014 Mood Analysis

Turbulence Histogram

- Turbulent: 38%
- Mild Turbulence: 34%
- Non-Turbulent: 28%
Michael Caruso 2014 Anxiety

Anxiety Attacks

- Days with Anxiety: 51%
- Anxiety Free: 49%

Anxiety Histogram

16 Anxiety Attacks

Panic Attack
Manic Episode
Depressive Episode
Mixed Episode
Anxiety
<table>
<thead>
<tr>
<th>Date</th>
<th>Week Avg Mood</th>
<th>Week Avg Turbulence</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5mg Zyprexa</td>
<td></td>
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<tr>
<td>5mg Zyprexa</td>
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<td></td>
</tr>
<tr>
<td>2.5mg Zyprexa</td>
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Increasing Job Stress
Managing Festival in NYC
Decision to start business
Important Job Interview

900mg Lithium
Why Track?

- Understand the interplay of emotions and behavior
- Identify early warning signs when episodes begin
- Gain deeper insight into triggers
- Better inform treatment
Thank You

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:::
Use of Zyprexa over time
Recent Episode Analysis: Clustering

[Graph showing manic, depressive, energized, and euphoric states over time]
Pattern of Cortisol Elevation

Open Circle - Control
Black Circle - Bipolar Depressed
Asterisk - Hypomanic
Open Triangle - Euthymic

Cervantes et al. 2001