Personality Facets in Patients with Major Depressive Disorder: Differential Change across Treatment and Association with Recurrence

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“I was depressed last year for around 6 months, but I have noticed my personality now sucks, I have no interest in other people but I get angry that other people show no interest in me, I get very angry at small things and also very sad when I think about my life, I no longer find anything funny and I can no longer make people laugh, I also find it hard to strike a conversation with my friends anymore. I have just turned into the most boring person in the world. When I honestly used to be well liked and could make anybody laugh, now I don’t know how to talk to people. Can I fix this? Sorry for the bad spelling & grammar”
“I've had depression for so long that it is my personality. I feel like if I suddenly became happy, I wouldn't know who I am anymore.”
Personality Change and Major Depressive Disorder (MDD)

- **Personality dimensions:**
  - Relatively stable in normative functioning individuals (Costa & McCrae, 1992)
  - Significantly change in the advent and treatment of MDD (Bagby et al., 2005; Klein et al. 2012)

- **Changes:**
  - Often up to one standard deviation in magnitude (Zinbarg et al., 2008)
### The Five-Factor Model of Personality

<table>
<thead>
<tr>
<th>Neuroticism</th>
<th>Extraversion</th>
<th>Conscientiousness</th>
<th>Agreeableness</th>
<th>Openness</th>
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<tbody>
<tr>
<td>Anxiety</td>
<td>Warmth</td>
<td>Competence</td>
<td>Trust</td>
<td>Fantasy</td>
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<td>Angry/hostility</td>
<td>Gregariousness</td>
<td>Order</td>
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<td>Depression</td>
<td>Assertiveness</td>
<td>Dutifulness</td>
<td>Altruism</td>
<td>Feelings</td>
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<td>Activity</td>
<td>Achievement-Striving</td>
<td>Compliance</td>
<td>Actions</td>
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<td>Impulsiveness</td>
<td>Excitement Seeking</td>
<td>Self-discipline</td>
<td>Modesty</td>
<td>Ideas</td>
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<tr>
<td>Vulnerability</td>
<td>Positive emotions</td>
<td>Deliberation</td>
<td>Tendermindedness</td>
<td>Values</td>
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</table>
Neuroticism and extraversion:
- Consistently change (Klein et al., 2012; Santor et al., 1997; Tang et al., 2009)
- Increased changes following antidepressant medication (ADM) compared to placebo (Tang et al., 2009)

All Five-Factor Model domains:
- Significantly changed following a combined ADM and psychotherapy regiment (Quilty et al., 2008)
Personality change:

- Modestly associated with MDD symptom change (Costa et al., 2005; Quilty et al., 2008; Santor, et al., 1997)

Absolute stability

- Not preserved across treatment for MDD (de Fruyt et al., 2006)

Relative stability

- Preserved across treatment for MDD (de Fruyt et al., 2006)
Pre-treatment personality dimensions:

Predict treatment response in patients MDD (Bagby et al., 2008; Quilty et al., 2008; Zinbarg et al., 2008)

Bagby et al. (2008)

Higher neuroticism, higher tendermindedness, lower trust, and lower straightforwardness: more likely to respond to ADM, compared to cognitive-behavioural therapy (CBT)
Gaps in the Literature

The domain level of analysis:
- Risks masking relationships driven by narrowly acting mechanisms (Piedmont et al., 2001; Quilty et al., 2013)

Change in personality facets across treatment for MDD:
- Relatively overlooked

Long-term health significance of personality change:
- Yet to be examined
The Current Study

1. Do facet-level traits in the Five-Factor Model change across treatment for MDD?
2. Do facet-level traits at post-treatment predict recurrence of MDD following treatment?
Method: Participants

- Participants: self-referred to a research treatment study

- Inclusion/exclusion criteria:
  - Current diagnosis of MDD: determined by the Structured Interview for DSM-IV, Axis I disorders, Patient version (SCID-I/P; First et al., 1995)
  - 18-70 years of age
  - Free of antidepressant medication (at least 4 weeks)
  - No borderline or antisocial personality disorders
  - No bipolar or psychotic disorders
  - No substance abuse in past 6 months
  - No concurrent active medical illness
Method: Participants

- 124 outpatients with MDD (40 male, 84 female)
  - Mean age: 41.68 years (SD = 12.47)

- Patients were randomized to receive 16 - 20 weeks of:
  - Cognitive-behavioral therapy (CBT; n = 41), Interpersonal psychotherapy (IPT: n = 45), or ADM (n = 38)

- 89 treatment responders completed the SCID - I/P ≤ 18 months following treatment
  - CBT: n = 26, IPT: n = 33, ADM: n = 30
Method: Procedure

Pre-Treatment Measures
- SCID-I/P
- BDI-II
- NEO-PI-R

16 – 20 Weeks

Post-Treatment Measures
- SCID-I/P
- BDI-II
- NEO-PI-R

≤ 18 Months

Follow-Up Measures
- SCID-I/P

SCID-I/P: Structured Interview for DSM-IV, Axis I disorders, Patient version (First et al., 1995)

BDI-II: Beck Depression Inventory-II (Beck et al., 1996)

NEO-PI-R: Revised NEO Personality Inventory (Costa & McCrae, 1992)
Method: Statistical Analyses

To test pre- to post- treatment changes in facets (controlling for MDD symptoms):

- We performed repeated measures analyses of covariance (ANCOVAs)
- We performed paired samples t-tests if ANCOVAs were significant

To test if facets at post-treatment predict recurrence of MDD:

- We performed logistic regressions
Results: Change in Facets across Treatment

Facets that decreased following treatment:

- **Neuroticism**
  - Angry hostility \( F(1, 74) = 26.72, p < .001 \)
  - Self-consciousness \( F(1, 74) = 7.14, p = .009 \)
  - Impulsiveness \( F(1, 74) = 8.20, p = .005 \)
  - Vulnerability \( F(1, 74) = 37.07, p < .001 \)

- **Extraversion**
  - Assertiveness \( F(1, 74) = 59.69, p < .001 \)

- **Conscientiousness**
  - Order \( F(1, 74) = 25.55, p < .001 \)

- **Openness**
  - Fantasy \( F(1, 74) = 4.25, p = .043 \)
Results: Change in Facets across Treatment

- Facets that increased following treatment:

  Extraversion
  - Warmth \[ F(1, 74) = 9.30, p = .003 \]
  - Gregariousness \[ F(1, 74) = 50.65, p < .001 \]
  - Activity \[ F(1, 74) = 47.82, p < .001 \]
  - Excitement seeking \[ F(1, 74) = 36.5, p < .001 \]
  - Positive emotionality \[ F(1, 74) = 37.92, p < .001 \]

  Conscientiousness
  - Competence \[ F(1, 74) = 5.40, p = .023 \]
  - Achievement striving \[ F(1, 74) = 32.04, p < .001 \]
  - Self-discipline \[ F(1, 74) = 35.83, p < .001 \]
  - Deliberation \[ F(1, 74) = 18.70, p < .001 \]

  Agreeableness
  - Trust \[ F(1, 74) = 13.11, p = .001 \]
  - Compliance \[ F(1, 74) = 13.91, p < .001 \]

  Openness
  - Aesthetics \[ F(1, 74) = 5.66, p = .020 \]
  - Actions \[ F(1, 74) = 26.43, p < .001 \]
  - Values \[ F(1, 74) = 4.19, p = .044 \]
Results: Differential Change in Facets

- Impulsiveness showed greater decreases in ADM \[F(2, 74) = 4.55, p = .014\]
Results: Differential Change in Facets

- Excitement-seeking showed greater increases in IPT \([F(2, 74) = 3.64, p = .031]\)
Results: Differential Change in Facets

- Modesty showed greater decreases in CBT \([F(2, 74) = 4.20, p = .019]\)
Results: Differential Change in Facets

- Actions showed greater increases in psychotherapy \([F(2, 74) = 3.28, p = .043]\)
Results: Differential Change in Facets

- Values showed greater increases in CBT \( F(2, 74) = 4.33, p = .017 \)
Results: Differential Change in Facets

- Depression \( [F(2, 74) = 3.35, p = .040] \)
Results: Post-Treatment Facets Predicting Recurrence at Follow-Up

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<td><strong>Step 1</strong></td>
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<tr>
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<td><strong>Step 2</strong></td>
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<tr>
<td>Self-consciousness* Psychotherapy</td>
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<tr>
<td>Self-consciousness*ADM</td>
<td>.98</td>
<td>.08</td>
<td>.06</td>
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*p < .05
Discussion: Summary

- Personality change at the facet-level occurs during outpatient treatment for MDD (effects small in magnitude)

- Personality facets provide insight into cycles that maintain MDD
Neuroticism

- Decreases in angry hostility, self-consciousness, impulsiveness, and vulnerability
- Denotes an enhanced coping ability (Klein et al., 2012; Quilty et al., 2008; Tang et al., 2009)

- Anxiety and depression did not significantly change
- MDD symptoms were controlled for
Extraversion

- Increases in warmth, gregariousness, activity, excitement seeking, and positive emotionality
- Denotes enhanced sociability and activeness (Klein et al., 2012; Quilty et al., 2008; Tang et al., 2009)

- Assertiveness decreased following treatment
- Denotes decreased dominance and forcefulness
Conscientiousness

- Increases in competence, achievement striving, self-discipline, and deliberation
- Denotes a heightened sense of personal responsibility and control

- Decreases in orderliness
- Denotes reductions in tidiness and organization
Discussion: Change in Facets across Treatment

**Agreeableness**
- Increases in trust and compliance
- Denotes a reduced suspiciousness of others and an enhanced capacity to cooperate

**Openness**
- Increases in openness to aesthetics, actions, and values
- Denotes cognitive flexibility
- Decreases in fantasy
- Denotes a reduced emphasis on inner experience
Results: Differential Change in Facets

- Impulsiveness showed greater decreases in ADM
  - Associations with the serotonergic neurotransmitter system (Evenden, 1999)

- Excitement-seeking showed greater increases in IPT
  - May reflect an increased craving for social stimulation (Klerman et al., 1984)

- Modesty showed greater decreases in CBT
  - CBT challenges self-focused cognitive distortions (Beck et al., 1979)
Results: Differential Change in Facets

- Openness to actions showed greater increases in psychotherapy
  - IPT and CBT encourage participation in novel activities
    (Beck et al., 1979; Klerman et al., 1984)

- Openness to values showed greater increases in CBT
  - CBT fosters person scientists (Arknof, 1980)

- Trait depression
  - Statistical artifact
Higher post-treatment self-consciousness:
- Predicts risk of recurrence

Self-conscious:
- Tendency to experience shame, embarrassment, and inferiority

Supported by evidence:
- Shame elicits a ruminative cognitions, which robustly predict MDD onset (Nolen-Hoeksema, 1991; Orth et al., 2006)
## Discussion: Review of Findings

### Change Across Treatment

<table>
<thead>
<tr>
<th>Attribute</th>
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<tbody>
<tr>
<td>Angry hostility</td>
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<td>Competence</td>
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### Differential Change

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### Recurrence

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Limitations and Implications

- Limitations
  - Findings may lack sufficient power to detect effects

- Clinical/treatment implications
  - Broaden desired treatment goals to include personality change
  - Target certain personality facets to facilitate long-term treatment gains
  - Consider personality resilience
This study was supported by an OMHF grant awarded to Dr. R. Michael Bagby