Conceptualizing Psychopathy in Terms of *Boldness, Meanness, & Disinhibition*: Implications for Prevention & Treatment

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Research on Mental Disorders:

*The Times They are a Changin’…*
“The old road is rapidly fading
So you better start swimming
Or you’ll sink like a stone…”
Broad Aims of my Research:

1) Finer-grained phenotypic assessment of individuals (vs. “psychopath”, “ASPD”)
   • consistent with proposed revisions to diagnosis of PDs in DSM-V & ICD-11

2) Operationalize facets of psychopathy in physiological terms
   • consistent with NIMH “Research Domain Criteria” (RDoC) initiative

“A number of challenges exist to understanding traditional mental disorders in neuroscientific terms.”

- e.g., disorder heterogeneity; diagnostic comorbidity; dissimilar measurement domains

“Neuroscientific conceptualization and understanding of mental disorders can be advanced by focusing programmatic efforts on neurobehavioral trait constructs—that is, individual difference constructs with direct referents in neurobiology as well as behavior.”

e.g., (1) defensive reactivity; (2) inhibitory control
Background: Historic Concepts and Current Assessment Methods
What is psychopathy?

• Longstanding matter of debate
• two dominant perspectives historically:
  1) psychopathy as “masked” psychological disturbance
     • Cleckley, Lykken, DSM-I/II, Lilienfeld PPI
  2) psychopathy as callous, predatory criminal deviance
     • McCord’s, Robins, DSM-III/IV, Hare PCL-R, Frick APSD
An Integrative Perspective:

The Triarchic Model of Psychopathy

(Patrick, Fowles, & Krueger, Development & Psychopathology, 2009)
Triarchic Model of Psychopathy  
(*Patrick et al.*, 2009)

- psychopathy encompasses 3 distinct behavioral (phenotypic) components:  
  *disinhibition, boldness, & meanness*

- psychopathy = *persistent disinhibition accompanied by* emotional detachment (i.e., *boldness and/or meanness*)
Disinhibition

Definition:

• lack of behavioral and emotional restraint

*Individuals who exemplify the disinhibition component of psychopathy…*
Boldness

Definition:

• fearlessness in social, emotional, and behavioral domains
Lykken (1995):

“The hero and the psychopath are twigs on the same genetic branch…"
"I AM THE GREATEST"
Muhammad Ali

The Hurt Locker

Wall Street
Issue of “successful” vs. “unsuccessful” psychopathy

Disinhibition:
  • lack of restraint promotes maladaptive outcomes

Boldness:
  • social efficacy & emotional resiliency are conducive to success
What if both are present?

Cleckley (1941/1976):

“[His] surface…shows up as equal to or better than normal and gives no hint at all of a disorder within…The observer is confronted with a convincing mask of sanity…

However, [he] fails altogether when he is put into the practice of actual living. His failure is so complete and so dramatic that it is difficult to see how such a failure could be achieved by anyone less defective than a downright madman.”
Meanness

Definition:

• aggressive resource-seeking without regard for others ("active disaffiliation")
“Are you gonna bark all day, little doggie, or are you gonna bite?”

Mr. Blonde
Operationalizing the Triarchic Model: Scale Measures of Boldness, Meanness, & Disinhibition
Boldness
Boldness Inventory

(Patrick, Vaidyanathan, Benning et al., in prep)

• scales designed to assess differing facets of boldness suggested by content/correlates of PPI Factor 1 (“Fearless Dominance”)

• boldness: strongly related (~.8) to dispositional fear/fearlessness (Kramer et al., Psy Med, in press)

• 9 scales, representing 3 distinct content domains (119 items total)…
**Boldness Inventory: Facet Scales**

(11-19 items; reliabilities $[\alpha] = .87 - .94$)

**Social Efficacy:**
- Dominance ("I seek out positions of power.")
- Social assurance ("It’s easy to embarrass me." [F])
- Persuasiveness ("I am a persuasive person.")

**Emotional Stability:**
- Self-assurance ("I’ve got what it takes to succeed.")
- Resilience ("I find it difficult to recover from even minor setbacks." [F])
- Optimism ("I generally feel hopeful about the future.")

**Venturesomeness:**
- Intrepidness ("I have no desire to parachute out of an airplane." [F])
- Tolerance for uncertainty ("It doesn’t worry me to be in a strange new place on my own.")
- Courage ("I stay cool, even in emergencies.")

→ Brief screening version: 19-items
Disinhibition & Meanness
Foundation for concepts of disinhibition & meanness:

- literatures on externalizing disorders of childhood & psychopathy in youth
- recent research modeling the domain of disinhibitory ("externalizing") problems & traits in adults...
Externalizing Spectrum Inventory (ESI)

(Krueger, Markon, Patrick et al., J Abnormal Psych, 2007)

• self-report inventory developed to comprehensively assess disinhibitory problems and related personality traits

→ Dutch version available (Sabrina Soe-Agnie, Nijmegen Addictions Inst.)
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- 23 final scales, representing 5 distinct content domains

- factor analysis of these 23 scales revealed
  - Dominant 1st factor: General Externalizing ("Disinhibition")
  - Residual factors reflecting
    - Callous aggression ("Meanness")
    - Substance abuse
Scale indicators of **General EXT** ("Disinhibition") factor:

- Irresponsibility
- Problematic Impulsivity
- Theft
- Impatient Urgency
- Dependability (-)
- Planful Control (-)
- Alienation

→ **brief (20-item) Disinhibition scale indexes this factor**
Scale indicators of **Callous Aggression** ("*Meanness*") factor:

- Empathy (-)
- Relational Aggression
- Destructive Aggression
- Excitement Seeking
- Physical Aggression
- Rebelliousness
- Honesty (-)  

Load more strongly on Call-Agg than on General EXT

→ *brief (19-item) Meanness* scale indexes this factor
Triarchic Psychopathy Measure
(TriPM; Patrick, 2010)

– comprises brief (19-20 item) boldness, meanness, & disinhibition scales

– 58 items total

– inventory, scoring key, & manual available…
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  * on-line, Google:  Phenx Toolkit psychopathy
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– Norwegian translation?
Validity of the TriPM with Offenders and Non-Offenders
TriPM Boldness, Meanness, Disinhibition: Relations with PCL-R psychopathy

Sample: 148 male prisoners (MN state prison)

Measures:

1) PCL-R

2) TriPM scales:
   Boldness: 19-item BI
   Meanness: 19-item ESI Call-Agg
   Disinhibition: 20-item ESI Gen EXT
**TriPM Boldness, Meanness, Disinhibition: Relations with PCL-R psychopathy scores**

*Regression Bs & multiple Rs:*

<table>
<thead>
<tr>
<th>PCL-R score</th>
<th>Bold</th>
<th>Mean</th>
<th>Disihib</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>.27*</td>
<td>.22*</td>
<td>.24*</td>
<td>.53*</td>
</tr>
<tr>
<td>Interp</td>
<td>.30*</td>
<td>.15</td>
<td>.14</td>
<td>.43*</td>
</tr>
<tr>
<td>Affective</td>
<td>.08</td>
<td>.23*</td>
<td>-.01</td>
<td>.26*</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>.13</td>
<td>.14</td>
<td>.36*</td>
<td>.48*</td>
</tr>
<tr>
<td>Antisocial</td>
<td>.20*</td>
<td>.18*</td>
<td>.18*</td>
<td>.41*</td>
</tr>
</tbody>
</table>

*p<.05
TriPM Boldness, Meanness, Disinhibition: Relations with other self-report psychopathy measures

Sample: 225 male & female undergrads (FSU)

Measures:

Psychopathic Pers Inventory (PPI)
Youth Psychopathic Traits Inventory (YPI)
Levenson Self-Report Ppy scale (LSRP)
TriPM scales
TriPM Boldness, Meanness, Disinhibition:  
*Relations with other self-report psychopathy measures*

**Regression Bs & multiple Rs:**

<table>
<thead>
<tr>
<th>Other Meas’s</th>
<th>Bold</th>
<th>Mean</th>
<th>Disihib</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPI</td>
<td>.50*</td>
<td>.46*</td>
<td>.41*</td>
<td>.79*</td>
</tr>
<tr>
<td>YPI</td>
<td>.40*</td>
<td>.37*</td>
<td>.50*</td>
<td>.74*</td>
</tr>
<tr>
<td>LSRP</td>
<td>.01</td>
<td>.34**</td>
<td>.23+</td>
<td>.44*</td>
</tr>
</tbody>
</table>

*p<.05    *p<.01

*⇒ PPI-based B, D, M subscales; relations w/ PCL-R total & facet scores parallel those for TriPM scales (N. Poythress)*
Conclusions:

1) PCL-R and some self-report psychopathy measures index all 3 triarchic constructs
   - Rs for best self-report measures were higher (.7-.8) than R for PCL-R (~.5)
   → issue of method variance
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1) PCL-R and some self-report psychopathy measures index all 3 triarchic constructs

   - Rs for best self-report measures were higher (.7-.8) than R for PCL-R (~.5)
     → issue of *method variance* (Blonigen et al., 2010)

2) Other self-report psychopathy measures (e.g., LSRP) index disinhibition & meanness only

   → same is true of DSM-IV ASPD
DSM-V: Proposed Revisions

Clinical (‘axis I’) disorders:
• conduct DO with/without CU traits (i.e., disinhibition with/without meanness)

Personality (‘axis II”) disorders:
• 6 PD trait domains, incl: Disinhibition, Antagonism (aka meanness)
• boldness measurable as high Att-seeking & Risk-taking + low Anxiety & Withdrawal
Personality Inventory for DSM-5  
(PID-5; Krueger et al., Psy Med, in press)

<table>
<thead>
<tr>
<th>TriPM scale</th>
<th>PID-5 trait predictors ((r))</th>
<th>(R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boldness</td>
<td>(\text{Risk-taking (0.45), Att-seeking (0.34), low Anxiety (-0.49), low Withdrawal (-0.36)})</td>
<td>(0.70^*)</td>
</tr>
<tr>
<td>Meanness</td>
<td>(\text{Callousness (0.72), Risk-taking (0.53), Manipulativeness (0.46)})</td>
<td>(0.77^*)</td>
</tr>
<tr>
<td>Disinhibition</td>
<td>(\text{Irresponsibility (0.73), Impulsivity (0.58), Risk-taking (0.44)})</td>
<td>(0.77^*)</td>
</tr>
</tbody>
</table>

*Sample: 95 community adults*  
*\(p<.001\)*
Q1: What is psychopathy?

A: **Conjunction** of somewhat interrelated, but dissociable, phenotypes: \( \text{Dis} + [\text{Mn} \&/\text{or} \ \text{Bd}] \)
Neurobiological Bases of Boldness, Meanness, & Disinhibition

“Neuroscientific conceptualization and understanding of mental disorders can be advanced by focusing programmatic efforts on neurobehavioral trait constructs—that is, individual difference constructs with direct referents in neurobiology as well as behavior.”

   e.g., (1) defensive reactivity; (2) inhibitory control
Boldness
Neurobiological Basis

**Boldness:**
Hypothesis = weak defensive reactivity
Defensive Reactivity

Definition:

• proneness to negative emotional reactivity in the face of threat

• neural basis: sensitivity of the brain’s defensive system, incl. amygdala & affiliated structures
A Neurophysiological Indicator of Boldness:

*Fear-Potentiated Startle*
Fear-Potentiated Startle:

**Aversive Stimulation**

AMYGDALA (central nucleus)

Nucleus reticularis pontis caudalis

Cochlear root neurons

Spinal/facial motor neurons

**ABRUPT NOISE**

**STARTLE REFLEX**
Fear/Fearlessness & Aversive Startle Potentiation

Vaidyanathan, Patrick, & Bernat (Psychophysiology, 2009)
Boldness:
Other Candidate Indicators

• Amygdala reactivity to fearful faces (Marsh et al., 2008; Hariri et al., 2002; Whalen et al., 1998)

  ➢ recent work by our group: amygdala reactivity to faces rendered invisible, through continuous flash suppression…
Binocular Rivalry

- Occurs when differing visual images are presented simultaneously to the two eyes

Alternating Percept:
Continuous Flash Suppression

Complex/dynamic visual image presented to one eye, simple/static image to other eye

Continuous Percept:
Individuals high in dispositional Negative Affectivity (NA) show enhanced right amygdala reactivity to suppressed ("invisible") fear faces.

Vizueta, Patrick et al. (Neuroimage, in press)
Disinhibition
Neurobiological Basis

Disinhibition:
Hypothesis = deficient inhibitory control
Inhibitory Control

Definition:
• ability to restrain or modulate impulses
• neural basis: functioning of anterior brain circuitry, including PFC & ACC
Neurophysiological Indicators of Disinhibition:

P300  ERN
Nelson, Patrick, & Bernat (2010, Psychophysiology)

N = 149

Response ERN

Flanker P3

Feedback P3

ERP Indicators

Criterion Variable | N | ERP Factor
--- | --- | ---
Psychometric
ESI | 88 | -.43***
ADS | 87 | -.40***
SDAST | 86 | -.11
BHR
Total | 87 | -.38***
Adult | 87 | -.33**
Adolescent | 87 | -.36**
Physiologic
Oddball-target P3 | 88 | .68***
Oddball-novel P3 | 88 | .69***
Indexing Triarchic Constructs **Physiologically**: Research Strategy

1) Identify replicable physiological indicators of psychometric *Disinh* & *Boldness* measures:

```
DIS_{psycho} → Phys_{var1} Phys_{var2} Phys_{var3} Phys_{var4} Phys_{var5}
BOLD_{psycho} → Phys_{var1} Phys_{var2} Phys_{var3} Phys_{var4} Phys_{var5}
```

*Will require systematic efforts by multiple investigators*
2) Use physiological indicators that covary with one another to establish *neurometric* Disinh and *Boldness* measures:
Meanness

...the final frontier
Callous Aggression (Meanness):

- Evidence for role of low fear (weak defensive reactivity) in meanness (Frick, Blair)

- However, phenotypic expression of meanness differs markedly from boldness.
Key Questions:

What environmental factors promote mean vs. bold outcomes in temperamentally fearless individuals?

- failed attachment
- early abuse (e.g., Caspi et al., 2002)
- modeling, social reinforcement
Key Questions:

What factors besides fearlessness contribute specifically to meanness?

- co-occurring disinhibitory/externalizing tendencies (negative feedback cycle)
- genes for low affiliation (‘schizo’ genes)
Triarchic Model: Impl’s for Treatment

1) Focus preventative programs on highest-risk youth
   → use neurometric measures + psychometric/diagnostic measures to identify youth/families in most need of services

2) Prevent bold & disinhibited dispositions from progressing toward meanness

3) Specific genes for disaffiliation?
   → e.g., Viding et al. (2005): CD+CU is highly heritable
   → may pose special challenges to prevention
Triarchic Model: Impl’s for Treatment

1) What to change and what to re-direct?
   → modifiable aspects of functioning vs. core traits (cf. J. Livesley)

2) Goals vs. weaknesses as focus of treatment (cf. Nick Wilson, Mary McMurrnan)
   → goal-oriented approach crucial for high-bold individuals
   → balanced focus on goals & weaknesses for high-disinhibited

3) Obstacles to treatment effectiveness (cf. Steve Wong, David Thornton)
   → high meanness/callousness poses a special challenge

4) Neurobiologically-informed treatments – e.g.:
   → disinhibition: external feedback-based learning
   → boldness: automated training to incentivize prosocial goals
The End