Violent Criminality: “It’s all in your head”

for the Board of Parole Hearings

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What do criminals look like?
What do killers look like?
How about this?

Dorothea Puente
What do sex offenders look like?
Jared Fogle

“the younger the better”
What do the brains of offenders look like?
Is there a "criminal" brain?

the brain on trial
Specific functions are associated with specific regions of the brain.
lateral hypothalamus acts as a “pleasure center”

ventromedial hypothalamus acts as a “satiation center”
Toxic Environments
critical period is from the 35th to the 48th day after the last menstrual period

- e.g., if 35 - 37 days: no ears
- e.g., if 39 - 41 days: no arms
- e.g., if 41 - 43 days: no uterus
This is the idea:

- The same teratogenic factors that produce physical birth defects also affect brain development at that same time.
  - e.g., hyperactivity, impulsiveness, restlessness, inattentiveness
Toxic Experiences
The developing brain is shaped by experience—including physical and psychological abuse, and neglect.
Experience can change the mature brain - but experience during critical early periods (prenatal; early childhood) organizes brain systems.
Trauma-informed Protocols

- e.g., effects of early childhood trauma might be misdiagnosed as an ADD.
distracted and disruptive behaviors that look like ADDs may instead be PTSD

- e.g., impulsivity vs. a stress response in overdrive
- e.g., inattention vs. hypervigilance to potential threats
the first 33 months are critical!
Violent behavior is the product of different factors interacting with each other.

- No **ONE** factor causes it.
  - (except some head injuries)
Psychology . . .

- is biology.
Silbersweig & Stern studies (1990s)

- using PET scans, examined brain activity of schizophrenic patients while hallucinating

- found they are actually experiencing voices in the absence of external stimuli
neurocriminology

- using neuroscience to understand criminal behavior
Consider pedophilia.

- pedophile ≠ child molester
Klüver-Bucy syndrome

Klüver & Bucy (1937)
- bilateral anterior temporal lobectomy in male rhesus monkeys
- excessive orality, hyperphagia, distractibility, hypersexuality and change in sexual preference, loss of fearful responses...
In humans:

- full blown KBS - after bilateral temporal lobectomy to control epilepsy
- partial KBS - diverse disorders affecting temporal lobe (e.g., head trauma; Alzheimer’s; unilateral temporal lobectomy)
  - most only have one or two features (b/c do not completely destroy anterior temporal regions)
Kevin - case report

hx: seizure focus in rt temporal lobe
  ◦ (partial) rt anterior temporal lobectomy at 33
  ◦ rare, slow-growing tumor
  ◦ seizures returned
  ◦ at 39, removed most of remaining temporal lobe . . . .
One month later:

- onset of dramatic behavioral changes: irritability++; hyperphagia (gained 3 pant sizes in 6 mos); hypersexuality...

- prosecution asked for the max: 20yrs
- neurologist Orrin Devinsky testified about KBS
- judge’s decision: 26 mos federal prison + 25 mos house arrest + 5 yrs supervision
But (again),

- most pedophiles develop urges early and without tumors, so ... ??
  - temporal lobe dysfunction appears to be involved in deviant sexual urges
Sex Hormones

- e.g., testosterone

- competitiveness
- dominance
- (aggression)
Circulating Testosterone Levels

*crime-prone age range

AGE

15-24 yrs*
But it’s complicated.

- Put 5 male monkeys in a large area together.
- Testosterone is *not causing* aggression; It is boosting aggression that is already there.
chronic violent offenders
Violent Behavior

- predatory

- impulsive
Neurological tests are revealing differences in the structure and function of the brains of chronic violent offenders. . .

. . . and differences in brains of impulsive vs. predatory offenders
Limbic system (amygdala) moderates controlled behavior underaroused prefrontal cortex [rational] impulsive [emotional] controlled behavior
Phineas Gage?

- 1848
- railroad worker
Severed connection between Prefrontal Cortex (rational thinking) and Limbic System (urges, drives, emotions)
Daniel Tranel (2000)

- injuries to ventromedial PFC of “normal” people (by stroke, infection, gunshot)

  → antisocial and violent behavior; impulsive; reckless; remorseless.
Robert Hare: Typical Traits of Psychopaths*

- glib and superficial
- egocentric; feel superior
- lack remorse/guilt
- lack (emotional) empathy
- deceitful and manipulative
- shallow emotions
- impulsive
- irresponsible
- need for excitement . . .

*Psychopaths exhibit almost all these traits.
Psychopathy

- personality disorder involving specific cognitive and emotional deficits
- lifelong pattern of antisocial behavior with no remorse
Many psychopaths do not become criminals per se (but can be equally exploitative, deceptive, and irresponsible).
a budding psychopath?
Brains of psychopaths:

- various, specific combinations of structural abnormalities and functional deficits

- e.g., lack conscience (no emotional empathy)

- e.g., poor impulse control
X bullying
Raine et al. (2000) -

- MRI study of 21 “psychopaths” (vs. controls)
- 11% smaller volume of neurons in PFC (~ 2 tsp)
control passion/impulsive predatory murderer
murderer

PET scans
Hare used functional brain scans: Psychopaths and non-psychopaths viewed neutral v. horrific pictures.
Unlike non-psychopaths . .

- psychopaths had very little activity in amygdala (similar to their responses to neutral pictures)
Yang, Schug, & Raine (2009)

- structural brain scans of 27 psychopaths (vs. controls)

- psychopaths’ amygdalae 18% smaller
Raine - individuals with smaller amygdalae are 3X more likely to recidivate within 3 yrs post-release
Psychopaths perform the lexical decision task differently.

EEG

- TREE
- TPSL
- BLOOD

process emotional words differently

Williamson, Harpur & Hare (1991)
tree

murder
Neurobiologically, the mechanisms that should impart emotion to thoughts and attitudes are not working properly.
They don’t care because they can’t care.
Psychopaths as Offenders
Robert Hare’s research suggests psychopaths constitute:

~ 1% of general population

~ 15 to 25% of prison population

(a minority LIKELY to re-offend)
Recidivism rates for criminal psychopaths are higher than for nonpsychopathic offenders.

- 2X higher for non-violent offenders
- 3X higher for violent offenders
1994 Pulitzer Prize winner

THE DEATH OF KEVIN CARTER: CASUALTY OF THE BANG BANG CLUB
Adrian Raine

- the “dangerous few”
- conceptualizes criminality as a disorder - in the same way as schizophrenia, etc.
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