



The Development of Emotional & Cognitive Maturity

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The development of cognitive and emotional maturity in adolescents and its relevance in judicial contexts

Literature Review

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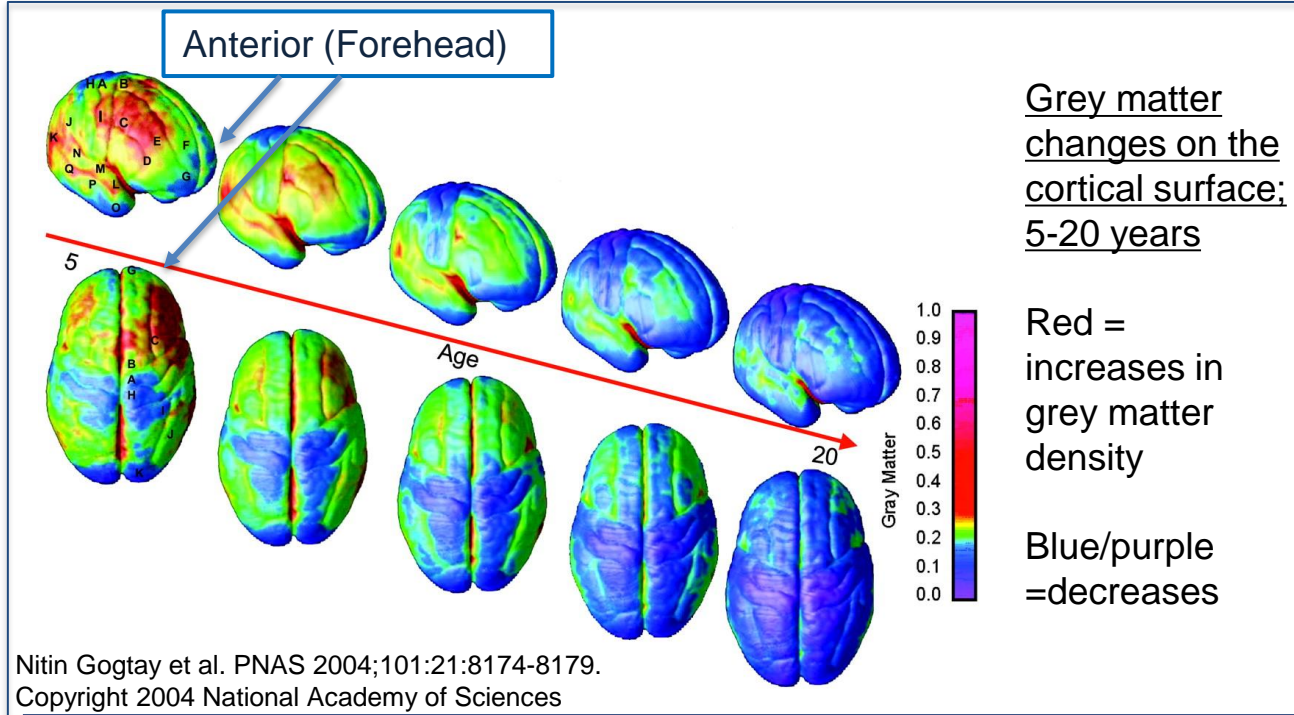
- <https://www.scottishsentencingcouncil.org.uk/media/2044/20200219-ssc-cognitive-maturity-literature-review.pdf>



Overview

- The process of brain maturation and the key processes of relevance to criminal justice
- Factors that affect or inhibit maturation

Brain Maturation During Adolescence



White matter increases due to increased connectivity & myelination

Grey matter decreases as pruning occurs

Nitin Gogtay et al. PNAS 2004;101:21:8174-8179.
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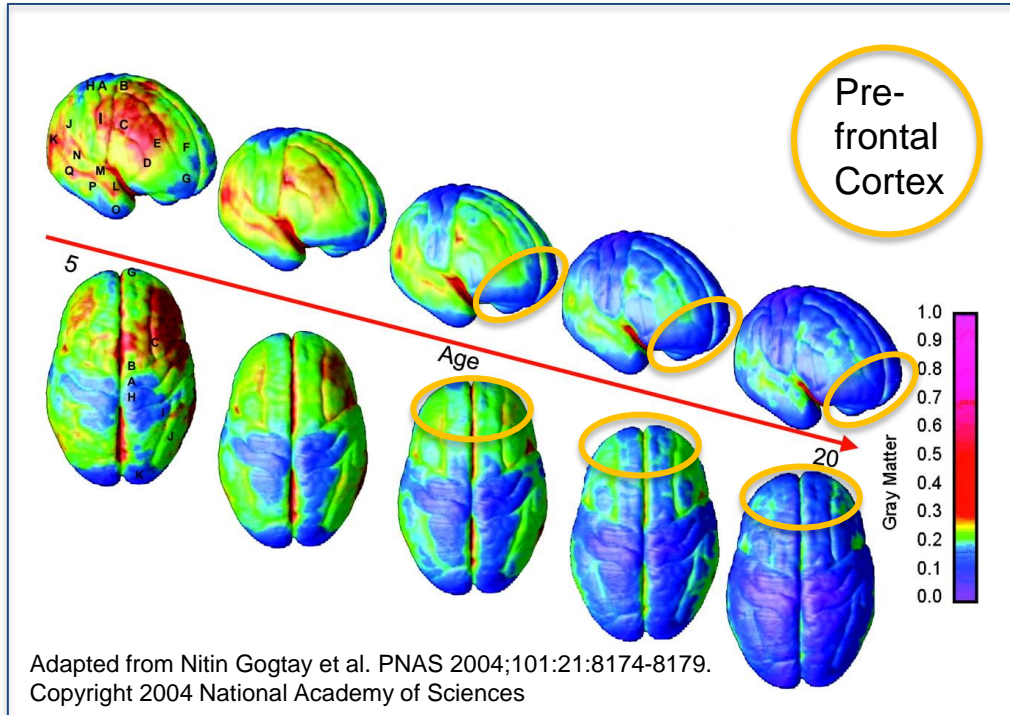


What do we consider maturity in the context of Criminal Justice?

The ability to:

- **plan** pro-social goal directed behaviours and alter plans when appropriate
- **consider** the **consequences** of behaviour
- **inhibit** inappropriate **impulses & sensation seeking**
- **regulate** **emotional** responses
- make **measured, rather than impulsive or risky, decisions**
- **attend** to relevant information

Executive Functioning relies on the frontal lobes

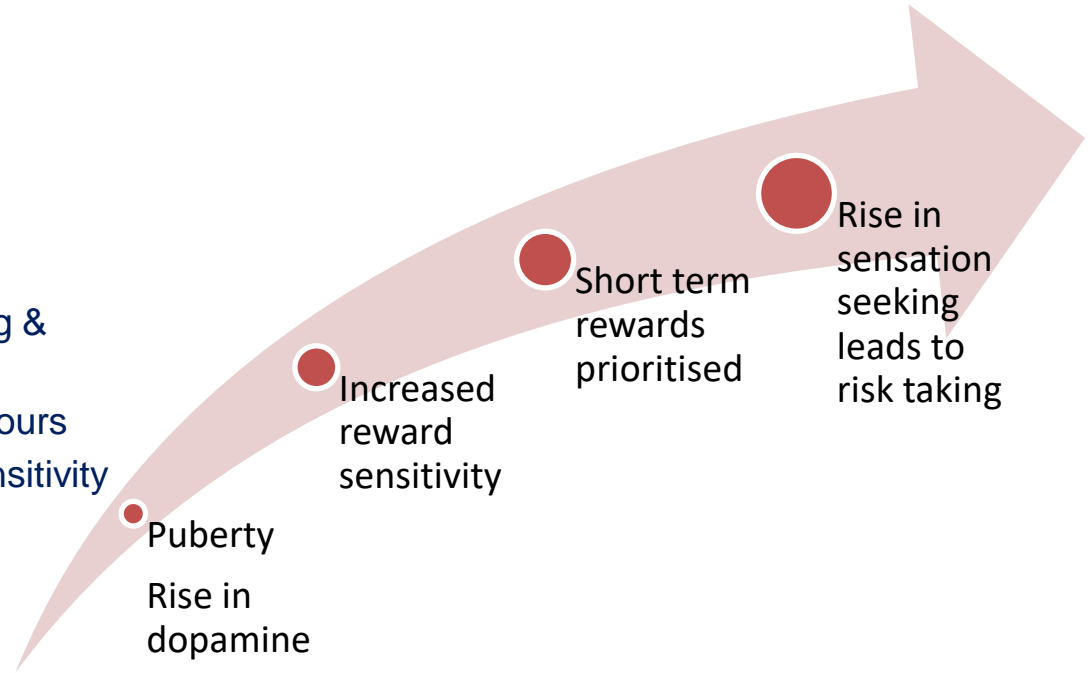


- Executive Functions:
- Consider/predict future consequences
- Direct, sustain & switch attention
- Problem solve, plan & strategize
- inhibit behaviour
- Evaluate multiple streams of information simultaneously
- Adjust behaviour or shift strategies in changing scenarios or situations
- Regulate intense emotions
- Control impulses
- Negotiate the balance between short-term rewards and long-term goals

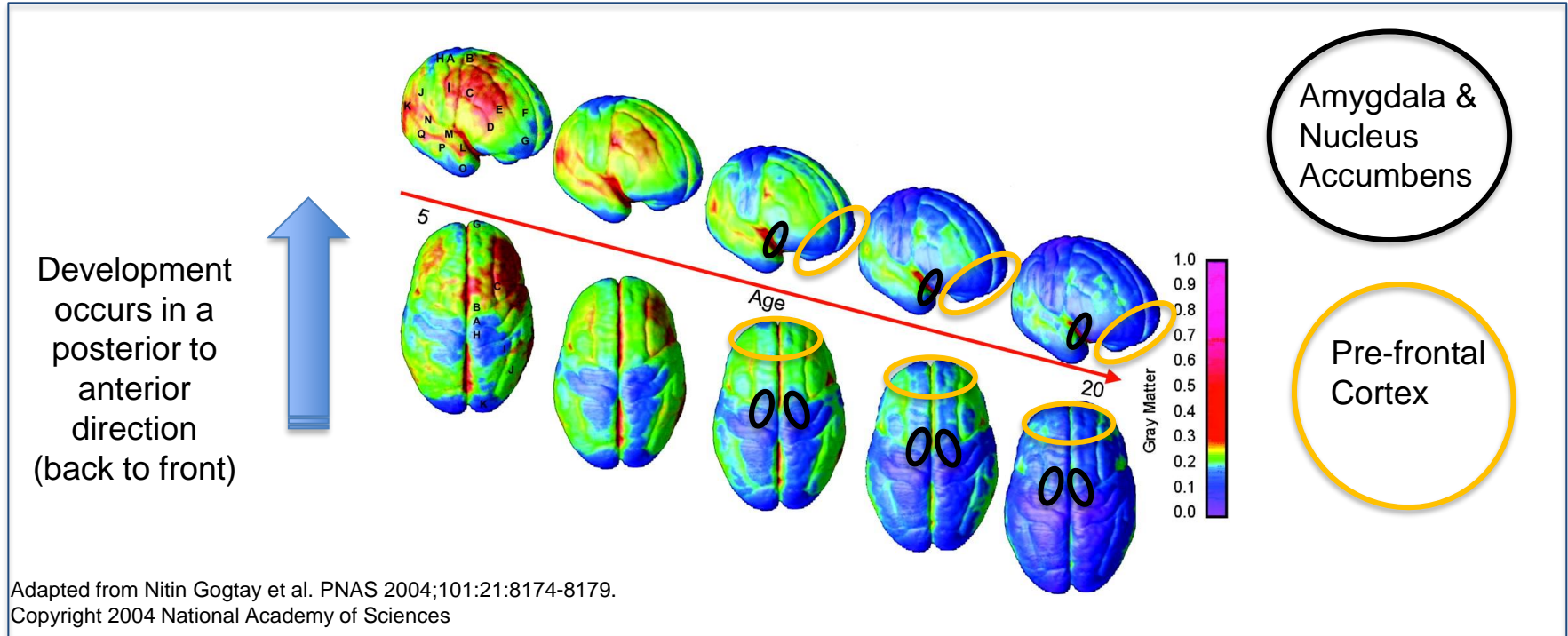
Motivational Drivers Associated with Adolescent Offending

Reward and sensation seeking

- Sensation seeking peaks in mid or late adolescence
- Presence of peers increases risk taking & sensitivity to rewards
- Peers can encourage prosocial behaviours
- Effects may be attributable to hypersensitivity to social exclusion or rejection



The socio-emotional system matures before the executive functions



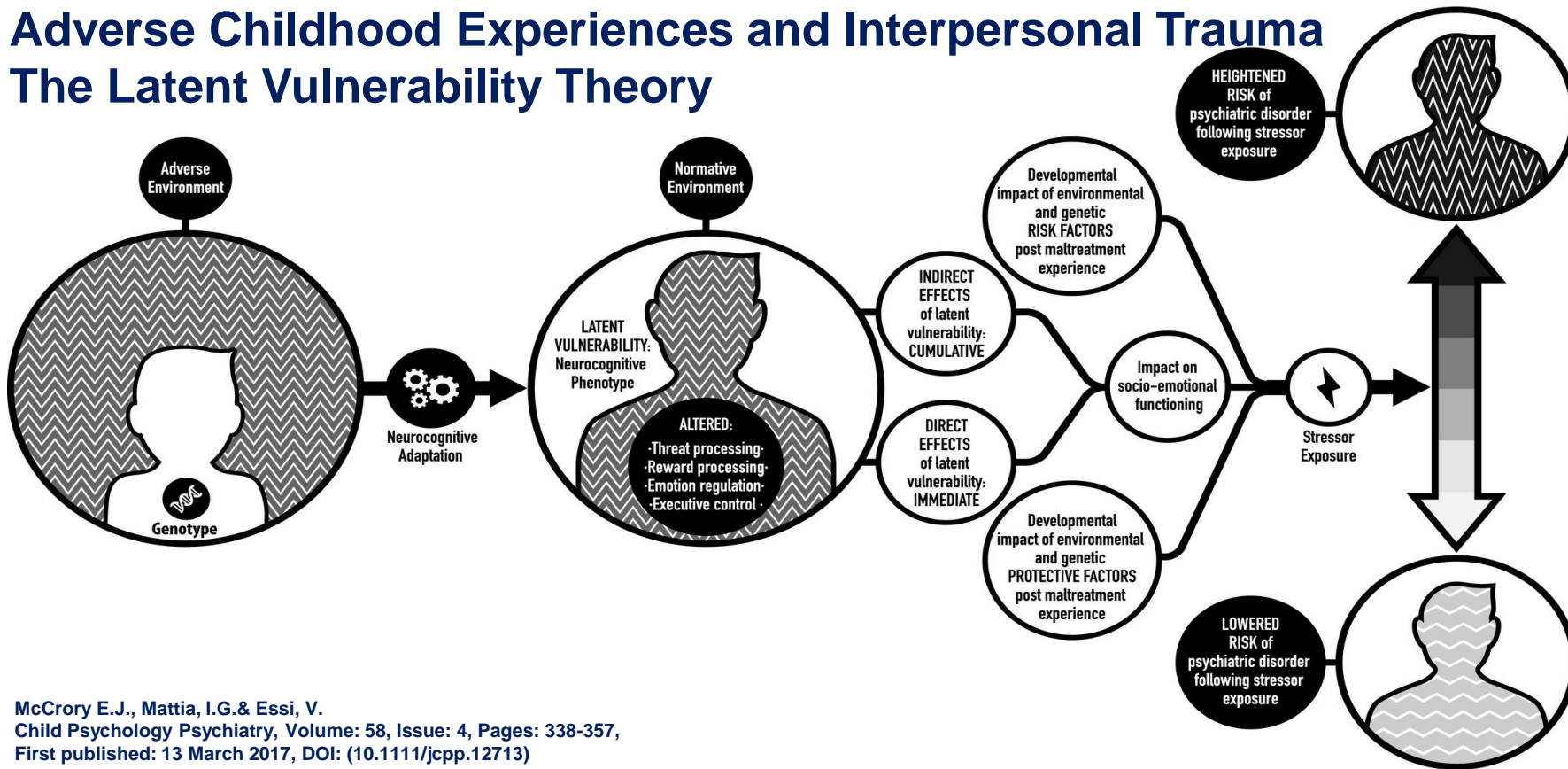
Factors that Affect or Inhibit Maturation

| Adversity Definition General population / offenders | Estimated % Population | Estimated % Criminal Justice |
|--|---------------------------|---------------------------------|
| Traumatic Brain Injury | 2% | 47-80% |
| Problem Alcohol Use* / Alcohol Use Disorder* | 12% | 63% |
| Problem Drug use* / Prisoners prescribed methadone* | 2% | 21% |
| Caregiver maltreatment (abuse & neglect) / Caregiver abuse (minus neglect) | 25% | >29% |
| Schizophrenia / Psychosis | 1% | 10% |
| Intellectual Disability (ID) /Diagnosed ID | 2.5% | 7% |
| Diagnosis of Autism Spectrum Disorder (ASD) | 1-2% | 2% |
| Attention Deficit Hyperactivity Disorder (ADHD) | 3-5% | 25-30% |
| Fetal Alcohol Spectrum Disorder (FASD) | >3.5-5% | 17-55% |

UK wide; *Scotland; All ages/ lifetime prevalence;

Adverse Childhood Experiences and Interpersonal Trauma

The Latent Vulnerability Theory





Adverse Childhood Experiences and Interpersonal Trauma

- Associated with impairment in:
- Executive functioning:
 - Inhibitory control
 - Cognitive flexibility
 - Sustained attention
 - Visual & Auditory attention
 - Working memory
 - Planning
 - Problems Solving



Fetal Alcohol Spectrum Disorder (FASD)

- FASD describes conditions resulting from exposure of the fetus to alcohol.
- Minimum population prevalence estimated 3.5-5% but likely significant underestimate

Prevalence in Criminal Justice populations:

- 55% of those in a forensic outpatient clinic in Canada. (1)
- 36% of those in a youth detention centre in Australia (2)
- 17.5% Canadian correctional population (likely nearer 31% had records of prenatal alcohol exposure been available) (3)
- See: www.faast.ed.ac.uk & <https://canfasd.ca/> for more information

(1) Mela, M. & Tait C., 2014. Cited in Courtney et al. Downloaded Jan 2022; <https://canfasd.ca/wp-content/uploads/2018/01/Brown-2014-FASD-in-the-criminal-justice-system.pdf> ; (2) Bower et al., 2018, BMJ Public Health; doi: 10.1136/bmjopen-2017-019605 ; (3) Lachlan et al., 2019, BMC Public Health; doi: 10.1186/s12889-018-6292-x

Conclusions

- Brain maturation is fully achieved in the mid to late twenties.
- But many may not achieve full functionality
- Typical Adolescence evidences increased sensitivity to incentives, rewards and emotion in the absence of sufficiently mature executive functions to facilitate their control

Therefore we recommend:

- Ensuring an adolescent's ability to engage with the court process and their fitness to plead
- Considering an adolescent's culpability, relative to their cognitive maturity and abilities, during sentencing
- Consider sentencing decisions with reference to their potential to expose an individual to additional contextual and behavioural factors which may inhibit or disrupt typical cognitive development.