ADHD and Offending

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Vulnerability

- **Cognitive deficits: they get caught! Opportunistic crime; high rates of recidivism.**
- **Cope with the process of the Criminal Justice System (police interview, court attendance)**
- **When incarcerated, undiagnosed and untreated individuals may be a management problem due to behaviour problems.**

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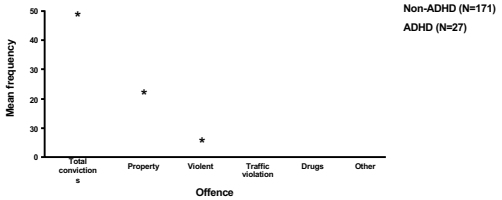
ADHD is associated with higher rate of recidivism

(controlling for antisocial personality disorder)



Mann-Whitney U test *p<0.05, two-tailed test

Young S, et al. J Psychopharmacol. 2011 Nov;25(11):1524-32.

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Predictors of offending

Total offences
1. Regular heroin use (β = .23)
2. Child ADHD (β = .16)

Violent offences
1. ~~Child ADHD~~ (β = .26)
2. Alcohol dependence (β = .22)

Drug offences
1. Regular crack cocaine use (β = .20)

Other offences (e.g. breach of bail, criminal damage, arson and sexual offences)
1. Regular heroin use (β = .23)

Property offences
No significant individual predictors

Similar pattern for 'current' ADHD symptoms

Predictors investigated were age at first conviction, current ADHD symptoms, ASPD, alcohol and substance dependence (Millon scales), and regular use (weekly +) of heroin and crack cocaine (self-reported on the Substance Use Questionnaire).

Young et al. *J Psychopharm, 2011*

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Police Custody Study

Learning Disability (N=195)
6.7% screened positive for LD ~ 0.3-2%

Conduct Disorder (N=194)
75.3% screened positive for CD ~ 1.7% boys 5-10yrs ~ 0.6% girls 5-10yrs

ADHD (N=196)
32% screened positive for childhood **
23.5% screened positive for current ~ 3-4% UK child
18.5% full diagnostic interview (adjusted) ~ 2.5% world adult

Co-morbidity
Of those who screened positive for ADHD, 96% also screened positive for co-morbid CD and/or LD.

Young, et al. BMC Medicine 2013.

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Behaviour in custody

The number of requests for food/drink and telephone calls was recorded during time spent in custody.

Significant positive correlations between number of demands made and...
...childhood CD (r=0.20, p<.01)
...childhood ADHD (r=0.16, p<.05)
...and current ADHD symptoms (r=0.28, p<.001)

(Controlled for length of time spent in detention)

For each diagnosis, those screening positive **made significantly more demands** than those screening negative.

Multiple regressions showed (1) ADHD and (2) alcohol drive demanding behaviours over and above comorbid CD.

Young, et al. BMC Medicine 2013.

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Interrogative Suggestibility

- Significantly impaired immediate and delayed verbal memory
- No difference in suggestibility scores
- Strategy of 'don't know' – even for recognition items[1]
- Current symptoms of ADHD associated with compliance and false confessions[2]

1 Gudjonsson et al, 2007, Personality and Individual Differences.
2 Gudjonsson et al, 2008, Psych. Med.

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Vulnerability in Court

- Need to pay attention, listen and understand evidence
- Anxiety exacerbates cognitive deficits
- Medication
- Special provisions for individuals who are unmedicated or have active symptoms

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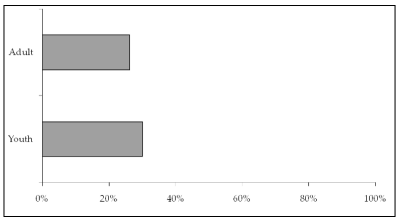
Meta Analysis: Prevalence

CRIME: Pooled prevalence of ADHD in youth and adult prisoners – 26-30% from 42 studies



Age - no significant difference between adults (>18 years) and youths (<18 years)

International - no difference between American, European and 'other' studies.

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World prison population

- Conservative estimate of up to 11m
- 25% estimate = 2.8m prisoners with ADHD worldwide

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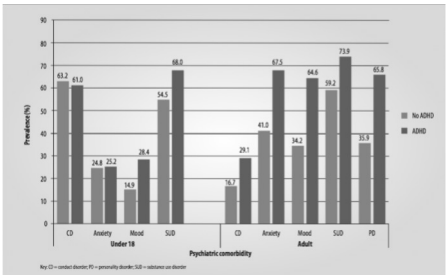
Meta Analysis: Co-morbidity



Proportion of psychiatric morbidity in prisoners with and without ADHD

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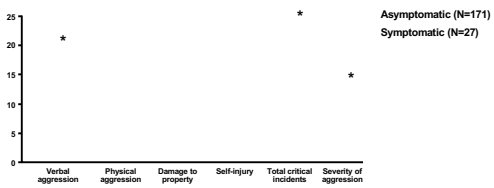
Critical incident ratings made by prison staff



No significant association with ASPD
Significant association with ADHD (controlling for ASPD)

ASPD, antisocial personality disorder.

Young S, et al. Personality and Individual Differences. 2009;46(3):265-269.

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Beyond the Gates - Probation Survey

- Poor response rate (11%) - few had received training in ADHD.
- Estimated 8% of caseload had ADHD vs 20% actual
- ADHD clients had specific difficulties (neuropsychological dysfunction, lifestyle and compliance problems) that hindered meaningful engagement with the service and/or rehabilitation.
- Difficult to manage due to internal processes (motivation and engagement) and external processes (inadequate or inappropriate interventions).
- Screening provisions are needed in probation settings, together with training for staff.

Young et al., 2014, AIMS Public Health

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Economic Consequences of ADHD in Prison

- N=390 adult males, mean age 30
- 25% ADHD (DIVA-2); 80% never received a diagnosis
- 32% ADHD (vs 17%) had literacy problems; 55% had TBI (vs 40% - x2 greater risk)
- Health Utilities Index-3 (HUI3) measured health-related quality of life (HRQoL) over past 4 weeks

Young et al, 2018 (18:209 and 18:210) BMC Psychiatry

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Quality-adjusted life years (QALY)

- QALY calculated from HUI3 composite score (extrapolated to costs for 1 year). Score range: 0.00 (dead) - 1.00 (perfect health). Gen Pop norms 0.91-0.93; clinically relevant difference of 0.03
- Average QALY for inmates without ADHD or TBI was 0.72. QALY for TBI-only was similar.
- After adjusting for age, anxiety and depression, HRQoL and QALY was significantly lower for inmates with ADHD (-0.20) and ADHD+TBI (-0.30)

Young et al, 2018 (18:209 and 18:210) BMC Psychiatry

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Medical and Prison Service Use

- MSU: records of past 3 months (visits to healthcare only, not costs of treatment or hospital stay) calculated from local Trust NHS reference costs
- PSU: from prison records (e.g. behaviour-related incidents, adjudications, non-attendance to activities) calculated from UK Ministry of Justice and HM Prison Service reference costs
- Combined MSU/PSU costs were significantly higher for those with ADHD
- Driven by MSU (to GP and nursing staff for both physical and m.h. needs). PSU was similar, so greater demand on NHS

Young et al, 2018 (18:209 and 18:210) BMC Psychiatry

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Costs based on Service Utilisation

- Estimated annual total cost per adult inmate with ADHD was £590 more than those without ADHD.
- = £11.7 million per year (25.5% of prison population of 77,472 adult male inmates in the UK)
- Conservative estimate: (1) excl. care costs (2) sig. higher rates of critical incidents associated with ADHD in other prisons (2) one-third reduction in crime rate when receiving ADHD medication (Lichtenstein et al. 2012)

Young et al, 2018 (18:209 and 18:210) BMC Psychiatry

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Criminality rates in individuals with ADHD whilst on and off ADHD medication

- A retrospective, Swedish registry study in individuals with ADHD (N=25,656) compared criminality rates when patients were on vs. off ADHD medications (during 2006–2009)
- 37% of males and 15% of females had been convicted of at least one crime
- When on medication, 32% reduction in crime rate for men and 41% for women
- Results indicated that even after adjusting for all confounders (incl. SSRIs) medication reduced criminality rates by 32–41%

			Criminality rate ratio			
			Cox regression		Stratified Cox regression*	
Gender	Patients (N)	Crimes (N)	HR	95% CI	HR	95% CI
Male	16,087	23,693	0.70	0.66–0.75	0.68	0.63–0.73
Female	9,569	4,112	0.78	0.68–0.90	0.59	0.50–0.70

CI, confidence interval; HR, hazard ratio; SSRI, Selective serotonin reuptake inhibitor.
Table adapted from Lichtenstein P, et al. 2012.

*Within-individual rate ratio (i.e. the hazard of committing a crime while on ADHD medication, compared to the same individual while not on medication).
Lichtenstein P, et al. N Engl J Med 2012; 367: 2006–14.

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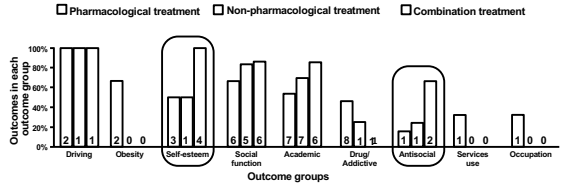
Multimodal treatment may have greater effect for some outcomes



- Domains of self-esteem, social function, academic and antisocial behaviour may respond particularly well to combination treatment
- Limited number of studies for some outcomes domains and treatment modalities

Arnold LE, et al. Plos One 2015;10(2):e0116407.

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INVERNESS STUDY: Pathways through Substance Transition among Offenders

Substance Transitions in Addiction Rating Scale (STARS) :
A – motivation for initiation (first drug)
B – reason for maintenance of first drug
C – reason for transition to other substances
D – reason for maintenance of other substances

All substance users	Conduct Disorder	ADHD Group Disorder group
A: None	**A:** *Sensation-seeking*	**A:** *Coping*
B: *Dependency, Sensation-seeking*	**B:** *Acceptance*	**B:** *Coping*
C: *Sensation-seeking*	**C:** *None*	**C:** *Coping, Dependency*
D: *Sensation-seeking, Acceptance*	**D:** *Coping, Dependency*	**D:** *Coping, Dependency*

Young, et al. 2017 Dual Diagnosis

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Young et al. CJS Consensus, 2018, BMC Psychiat

Young et al. BMC Psychiatry (2018) 18:281
https://doi.org/10.1186/s12888-018-1858-9

BMC Psychiatry

RESEARCH ARTICLE Open Access

Identification and treatment of offenders with attention-deficit/hyperactivity disorder in the prison population: a practical approach based upon expert consensus

Susan Young[1*], Gisli Gudjonsson[2], Prathiba Chitsabesan[3], Bill Colley[4], Emad Farrag[5], Andrew Forrester[6], Jack Hollingdale[7], Keira Kim[8], Alexandra Lewis[9,10], Sarah Maginn[11], Peter Mason[12], Sarah Ryan[13], Jade Smith[14], Emma Woodhouse[15,16] and Philip Asherson[17]

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What was it like growing up with ADHD?.....

"It was secondary school when the wheels came off. I got angry when confronted. I missed classes. By year 13 [age 17] the teachers had given up on me and deemed me as 'unteachable'. I grew frustrated and gazed out the windows. I couldn't keep my attention….. the teachers droning on. I was bored out of my mind."

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Indicators suggestive of ADHD

- Symptoms of Inattention and/or H/IMP from childhood
- Focus on H/IMP may mean females are missed
- Symptoms of emotional dysregulation, poor self control
- History of chronic mental health problems, failed treatment programs (mood, anxiety, PTSD, emotional instability, deliberate self harm, borderline personality disorder)
- History of educational failure, school expulsion, poor work record, driving offences, impulsive aggression, substance use

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"I got the hell out of school as fast as I could….. What I wanted was excitement. The boredom was crushing me, so I turned to alcohol, and I loved it. I was suddenly with no fear, and it wasn't long before I had access to drugs. First weed, then speed. Speed was amazing, and thus began my 25 year relationships with drugs."

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"The police used to pick me up for being completely wasted in the park or for fighting. I started to get involved with the shadier characters in town. I started shoplifting, sometimes to pay for drugs, but most of the time because I got a buzz from the actual act itself. I had no fear of getting caught. That was half the fun. I was 15, and then I started dealing."

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Assessment Process

- Protocol: Screen at reception → rating scale → referral for dx i/v
- Assess risk: DSH, suicide, impact of segregation
- Rating scales are not diagnostic instruments but tools to aid diagnosis and monitor clinical progress.
- If used to screen, borderline cut off scores should not exclude referral

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Assessment Process

- Semi-structured clinical interviews helpful – symptoms may change over time for both males and females.
- Obtain collateral information from independent sources BUT be mindful they may be less reliable if source perceives ADHD is a 'behavioural disorder'.
- School reports often omit social engagement/behaviour.
- Neuropsychological assessments are not specific markers of ADHD but useful to augment the clinical decision-making process.

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Youth Assessment Tools (*Italics = not free of charge*)

- Primary Screen: Comprehensive Self Assessment Tool (CHAT)
- Rating scale: SNAP-IV, *Conners' CBRS* (sensitive to both inattention and hyperactivity/impulsivity)
- Clinical diagnostic interview: ADHD Child Evaluation (ACE: incl. prompts to assess comorbidity; ICD/DSM options)

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Adult Assessment Tools (*Italics = not free of charge*)

- Primary Screen: Brief-Barkley Adult ADHD Rating Scale (B-BAARS; 6 items)
- Rating scale: Adult Self Rating Scale (ASRS: but ? less suitable for prison populations due to wording). Use a DSM-5 scale that is sensitive to inattention and hyperactivity/impulsivity
- Clinical diagnostic interview: ACE+ (incl. prompts to assess comorbidity; ICD/DSM options), DIVA-5, *CAADID*

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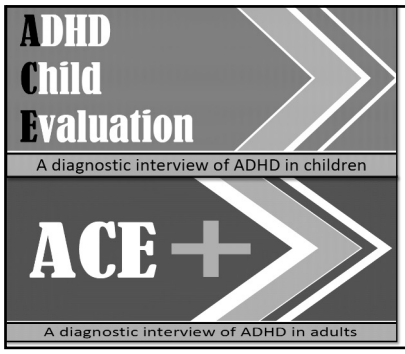

Available to download from the resources section of **www.psychology-services.uk.com**

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Brief version of the Barkley Adult ADHD Rating Scale (B-BAARS)

Instructions:
Please read each statement and mark an 'X' next to the response that best describes your behaviour during the given timeframe.

When I was a child aged 6-12 years, I...

	Never/Rarely	Sometimes	Often	Very Often
1. Left my seat in classroom or in other situations in which remaining seated was expected				
2. Lost things necessary for tasks or activities				
3. Interrupted or intruded on others				

During the past 6 months, I...

	Never/Rarely	Sometimes	Often	Very Often
4. Fidgeted with my hands or feet or squirmed in my seat				
5. Had difficulty engaging quietly in leisure activities or fun tasks				
6. Had difficulty awaiting my turn				

Comments:

Psychology

B-BAARS can be downloaded from:

www.psychology-services.uk.com

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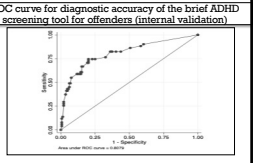
B-BAARS: Development and diagnostic validity of a brief screening tool for ADHD for use with offenders

- 390 male inmates at HMP Inverness
- All screened and clinically assessed for ADHD
- Prevalence of ADHD **24.6%**
- 6-item scale that maximised diagnostic accuracy:
  - sensitivity (**.84**)
  - specificity (**.82**)
- Area Under the Curve
  - Internal validation (**.81**)
  - Cross-validation (**.82**)

ROC curve for diagnostic accuracy of the brief ADHD screening tool for offenders (internal validation)



Young et al. (2016). Psychological Medicine

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You were diagnosed with ADHD much later in adulthood. How did that come about…..

"I got my dream job, then I got fired. I decided to end it all. I downed a bottle of whiskey with several pills, lay back and waited for death. I was found by a group of teenagers. It was at this point my wife insisted that I was tested for ADHD. She'd been researching it in relation to our eldest son and as she went through the symptoms she said, 'this is you, this is you, this is definitely you.'"

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Interventions

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Person-centred Approaches

- Psychoeducation to encourage and empower
  - Promote active role in treatment
  - Supplement with written material
  - Topics: symptoms, co-morbidity, treatment options, side effects
- Plan to support transition between institutions and prepare for release:
  - to ensure continuity of care and uninterrupted treatment
  - includes arrangements with supportive services and agencies

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Institution-centred Approaches

- ADHD awareness, behaviour, difficulties and how to support/manage
- Female offenders have a more complex profile (pregnancy, motherhood and greater co-morbidity e.g. ++DSH)
- Solitary confinement exacerbates ADHD symptoms (last resort)
  – give activity to occupy time

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Pharmacological treatment

- Stimulants 1st line (quick response),
  - Avoid immediate release preparations (potential for abuse)
- Non stimulants 2nd line
  - Use if history of stimulant abuse and/or drug seeking behaviour
  - better for those with rapid/severe symptoms once stimulant effects wear off
- Restrictions on movements within prison (escorting) to dispensary → delays, stigmatisation and impact on adherence

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Co-morbidity

- High rates – TBI, SUD, communication disorders, ASD, learning problems, mental health problems, DSH.
- Beware mistaking ADHD emotional instability for bipolar episodic mood change or symptoms of personality disorder
- Substance use dependency – need detoxification first
- Treat ADHD first and re-evaluate co-morbidity (often improves) unless psychosis, bipolar disorder, severe depression, substance use dependency

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How did you find being put on medication?.....

"I was put on lisdexamfetamine and my life transformed. The symptoms improved immeasurably. I could do things! I could concentrate. I didn't want to get hammered all the time, and I could prioritise things. Best of all, I didn't procrastinate – the very worst symptom of ADHD."

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But……

"The euphoria of the meds working subsided and the decades of chaos began to wear a heavy burden. Whilst I was excited about the future and thought of life as a blank page, I began to feel resentful at what might have been. The addiction, the risky behaviour, the women I had let down. Most of all that life had been such a struggle, needlessly. The teachers didn't recognise there was a problem, employers didn't see there was a training issue, and partners didn't see that I wasn't a lazy selfish dickhead. Meds are great, but they're not the be all and end all.

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Non-pharmacological Interventions

- Multi-modal treatment – largest treatment effect
- CBT focus (include CRT and DBT approach)
- OBPs + neurocognitive intervention, e.g. R&R2 ADHD
- Embed a mentorship 'bridge' in treatment (e.g. R&R2 PAL)
- They do best in educational/occupational programs that advance vocational, creative, technical and/or athletic skills
- Critical Time Interventions to facilitate the release process:
  - support implementation of the care plan
  - ensure engagement with healthcare and other key agencies

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Aims of Psychological Interventions

- Following diagnosis, cognitively reframe understanding of the past
- Address cognitive, social and emotional problems
- Improve self-regulation skills and coping strategies
- Increase self-advocacy and critical reasoning skills
- Learn process-focused techniques (decision making, problem solving, set personal targets and make constructive plans to achieve them)
- Build prosocial competence, self-confidence and self-esteem
- Address life-long patterns of dysfunctional behaviour/attitudes
- Improve quality of life

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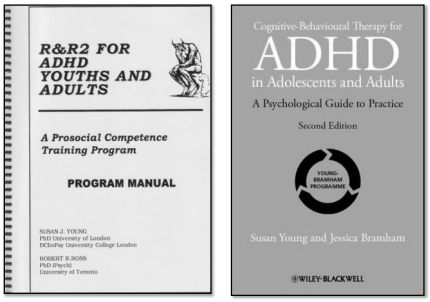

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5 Modules:

1. **Neurocognitive**
   - attention, memory, impulsiveness, planning
2. **Problem Solving**
   - consequential thinking, making choices, conflict resolution
3. **Emotional Control**
   - anger, anxiety
4. **Social skills and values**
   - non-verbal, social perspective taking, empathy
5. **Critical Reasoning**
   - Rationalization, decision making skills, moral reasoning

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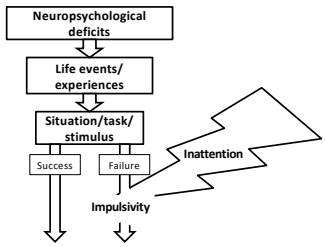
Psychological Treatment Paradigm



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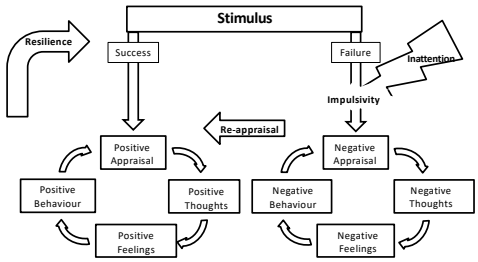
Psychological Treatment Paradigm



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Identify and address barriers

- Poor awareness about ADHD (recognition)
- Lack of staff training
- Inappropriate/lack of screening/diagnostic tools
- Inappropriate/lack of multi-modal interventions
- Inappropriate/lack of care management plans (especially adults)
- Lack of preparation for prison release
- Lack of multi agency liaison

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Consequences

1. Misdiagnosis, inappropriate treatment. Inadequate/lack of a care-pathway
2. Limited capacity to engage meaningfully in judicial process (police interview, court)
3. Limited capacity to engage and benefit from rehabilitation activities (OBPs, education, occupation)
4. Behavioural/management problems in prison
5. High number of adjudications
6. Less likely to access early release
7. Revolving door offenders – recidivism
8. Cost/burdon to society

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"I'm 40 now and I look back with a heavy heart. This will take years to unpick, probably all my life, and I still look at people sailing through life enviously. I still feel like an outsider looking in, and probably always will. Anyhow, that's the story of my life."

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ADHD Prison Consensus Statement – BMC Psychiatry
ASD/ADHD Consensus Statement – BMC Medicine
ADHD Fetal Alcohol Spectrum Consensus – BMC Psychiatry
Female Consensus Statement – BMC Psychiatry
(Recording of latter on Dr Susan Young YouTube Channel)

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