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2017-12-07 Mental health in Prison and Probation CEP Europris

Attention Deficit Hyperactivity Disorder (ADHD) frontline - experience from Sweden

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Aim of the workshop

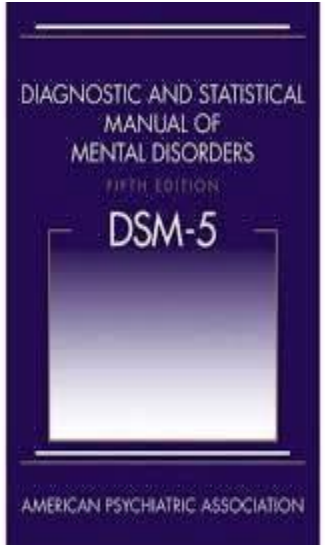
- Background & Evidence
- Experiences from the ADHD-projects within the Swedish Prison and Probation Service
- Discussion

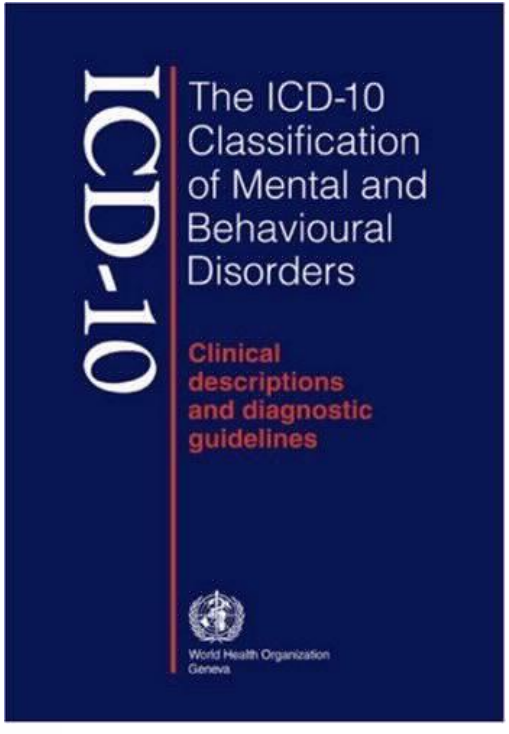
The ADHD diagnosis

- Children with severe problems of inattention and hyperactivity were described already 1798 by a Scottish physician Alexander Chricton as *mental restlessness*
- 1900s Minimal Brain Damage/ Dysfunction (MBD) .
- 1980 ADHD entered the Diagnostic and Statistical Manual of Mental Disorders (DSM)
- ADHD has been regarded as a childhood diagnosis but in many cases problems persist into adulthood (Kooij et al. , 2010).

The ADHD diagnosis

The corresponding diagnosis in ICD-10 (WHO) is Hyperkinetic disorder





DSM-5 criteria for ADHD

- People with ADHD show a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development
- ***Inattention:*** Six or more symptoms of inattention for children up to age 16, or five or more for adolescents 17 and older and adults; symptoms of inattention have been present for at least 6 months, and they are inappropriate for developmental level
- ***Hyperactivity and impulsivity:*** Six or more symptoms of hyperactivity-impulsivity for children up to age 16, or five or more for adolescents 17 and older and adults; symptoms of hyperactivity-impulsivity have been present for at least 6 months to an extent that is disruptive and inappropriate for the person's developmental level

DSM-5 criteria for ADHD

In addition, the following conditions must be met:

- Several inattentive or hyperactive-impulsive symptoms were present before age 12 years.
- Several symptoms present in two or more settings, (e.g., at home, school or work; with friends or relatives; in other activities).
- Clear evidence that the symptoms interfere with, or reduce the quality of, social, school, or work functioning.
- Symptoms do not occur only during the course of schizophrenia or another psychotic disorder/not better explained by another mental disorder (e.g. Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder, Substance Use Disorder).

Important

Symptoms are normally distributed in the population

Frequency, duration, cross-setting ocurrence and significant impairment is central for diagnosis

Prevalence

General population:

Children 5%

Adults 2,5%

Polanczyk et al., 2007; Simon et al., 2009

Meta-analysis of the prevalence of ADHD in incarcerated populations

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Results

- Forty-two studies included (N=26641, of whom 5677 were reported to be diagnosed with ADHD).
- Using structured diagnostic interview data, **ADHD prevalence was 25 %** with no significant differences for gender and age
- Studies were carried out in: Austria, Brazil, Germany, Iran, Netherlands, Nigeria, Spain, Sweden, UK, USA

- Young et al., 2014, *Psychological Medicine*

Comorbidity - rule rather than exception

- autism spectrum disorder
- communication and specific learning or motor disorders
- intellectual disability, and tic disorders
- Behavioural problem; oppositional defiant and conduct disorders

- Substance use disorders
- Personality disorders
- Depression
- Anxiety disorders
- Eating disorders

Co-morbid psychiatric disorders among incarcerated ADHD populations: a meta-analysis

- Results: Eighteen studies with data for 1615 with ADHD and 3128 without ADHD were included.
- The risk (OR) of all psychiatric morbidity is increased among adult inmates with ADHD. Associations in youths with ADHD were restricted to mood disorder (OR 1.89, 95% confidence interval 1.09–3.28).

Young et al., 2015, *Psychological Medicine*

Comorbidity and differential diagnostics

- Confirm childhood symptoms
- Comorbidity - important for treatment planning

ADHD and criminality- what do we know?

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Risk factor for criminality

- Several longitudinal studies has shown that ADHD is a risk factor for criminality
- Comorbid conduct disorder increases the risk
- Children with ADHD have a four time higher likelihood of being convicted of a violent crime at the age of 15-25 compared with matched controls

E.g. Wilens et al. 2005; Satterfield et al., 2007; Mannuzza, Klein, & Moulton, 2008; Langley et al., 2010; Mordre, Groholt, Kjelsberg, Sandstad, & Myhre, 2011; Lundström et al., 2013

Risk factor for criminality

- Hyperactivity, impulsivity and difficulties to regulate emotions are suggested to increase the risk
- Hyperactivity symptoms are related to more severe violence resulting in physical injuries
- ADHD is to a higher extent related to reactive than proactive violence

Retz & Rösler, 2010; Fang et al, 2010; Young & Thome, 2011

ADHD in the Swedish Prison & Probation Services

- The Swedish Prison and Probation Service has contributed to the empirical knowledge in the field of ADHD in relation to criminality by conducting several studies in collaboration with prominent researchers
- Along with gained knowledge the need for actions within the services has developed

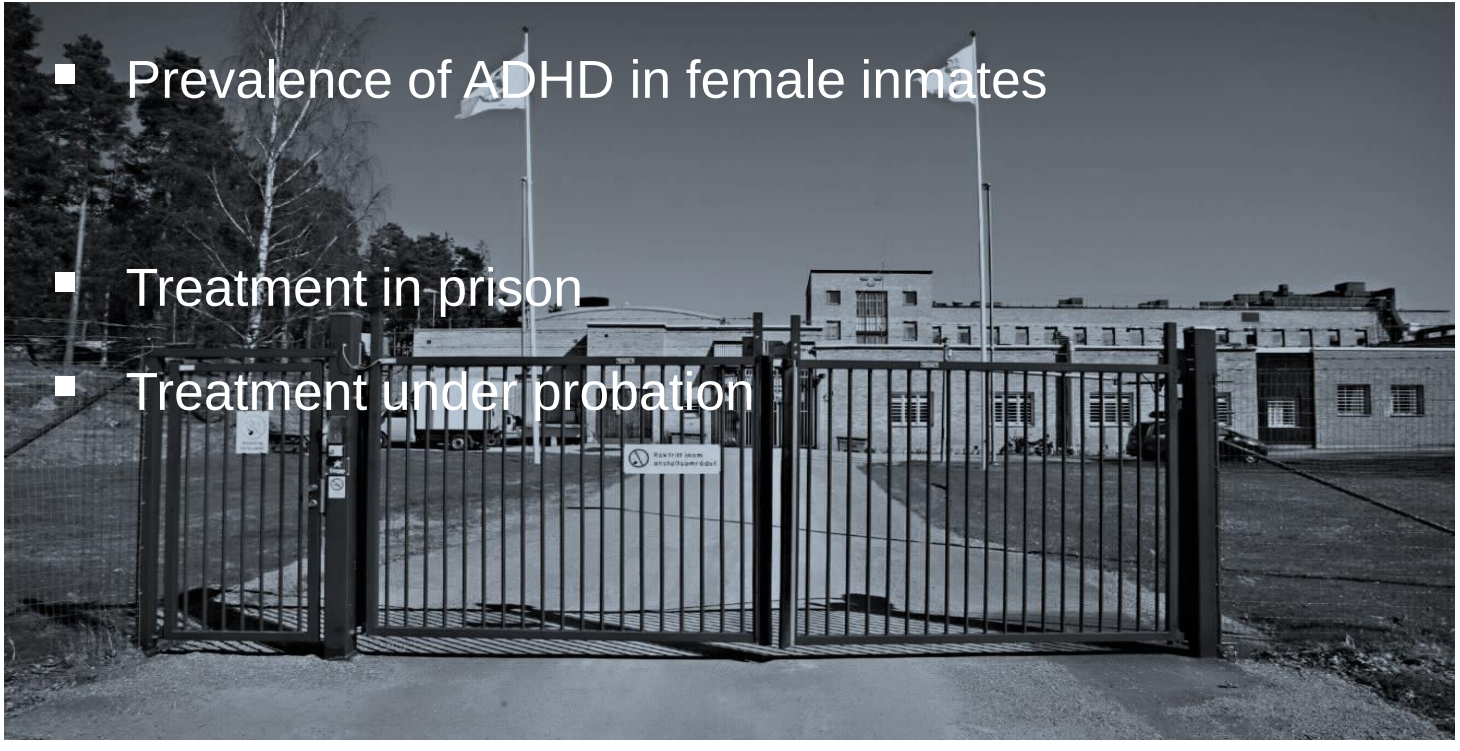
Studies conducted within the Swedish Prison and Probation Service or by researchers employed by SPPS

Article	Authors	Publication year	Population	Design	Main outcome
An Epidemiological Study of ADHD, Substance Use, and Comorbid Problems in Incarcerated Women in Sweden.	Konstenius, M, Larsson, H, Lundholm, L, Philips B, Glind, CV Jayaram-Lindström,N Franck J.	2012	96 female prison inmates	Cross-sectional	The prevalence rate of ADHD in incarcerated women was high and comparable to that in male offenders. Illicit stimulant use and antisocial personality disorder were significantly more common in women with ADHD. ASRS is useful as a screener in this population.
Methylphenidate for ADHD and Drug Relapse in Criminal Offenders with Substance Dependence: A 24-week Randomized Placebo-controlled Trial.	Konstenius, M, Jayaram-Lindström, N Guterstam, J Beck, O, Philips B, Franck J	2013	54 men currently incarcerated, meeting DSM-IV criteria for ADHD and amphetamine dependence.	RCT	The MPH treated group reduced their ADHD symptoms during the trial (P = 0.011) and had a significantly higher proportion of drug negative urines compared with the placebo group (P= 0.047), including more amphetamine negative urines (P = 0.019) and better retention to treatment (P = 0.032).

Article	Authors	Publication year	Population	Design	Main outcome
Attention Deficit Hyperactivity Disorder (ADHD) among longer-term prison inmates is a prevalent, persistent and disabling disorder	Ginsberg, Y, Hirvikoski, T, Lindefors N	2010	315 male prison inmates		This study suggested ADHD to be present among 40% of adult male longer-term prison inmates. Further, ADHD and coexisting disorders, such as SUD, ASD, personality disorders, mood- and anxiety disorders, severely affected prison inmates with ADHD
Methylphenidate treatment of adult male prison inmates with attention-deficit hyperactivity disorder: randomised double-blind placebo-controlled trial with open-label extension	Ginsberg Y, Lindefors, N	2012	30 male prison inmates	RCT Double blind placebo-controlled 5 weeks	Treatment significantly improved ADHD during the trial (P<0.001; Cohen's d = 2.17), with reduced symptom severity and improved global functioning. The placebo response, cardiovascular measures and adverse events were non-significant; the NNT was 1.1. Attention-deficit hyperactivity disorder symptoms, global severity and global functioning continued to improve during the open-label extension.
Long-term functional outcome in adult prison inmates with ADHD receiving OROS-methylphenidate	Ginsberg, Y Hirvikoski, T Grann, Lindefors, N	2012	30 male prison inmates	RCT 47-week open label trial	Verbal and visuospatial working memory, and abstract verbal reasoning improved significantly over time, as well as several cognition-related measures and motor activity. The quality of life domains of Learning, and Goals and values improved over time; the latter domain was at open-label endpoint significantly related to improvements in attention.

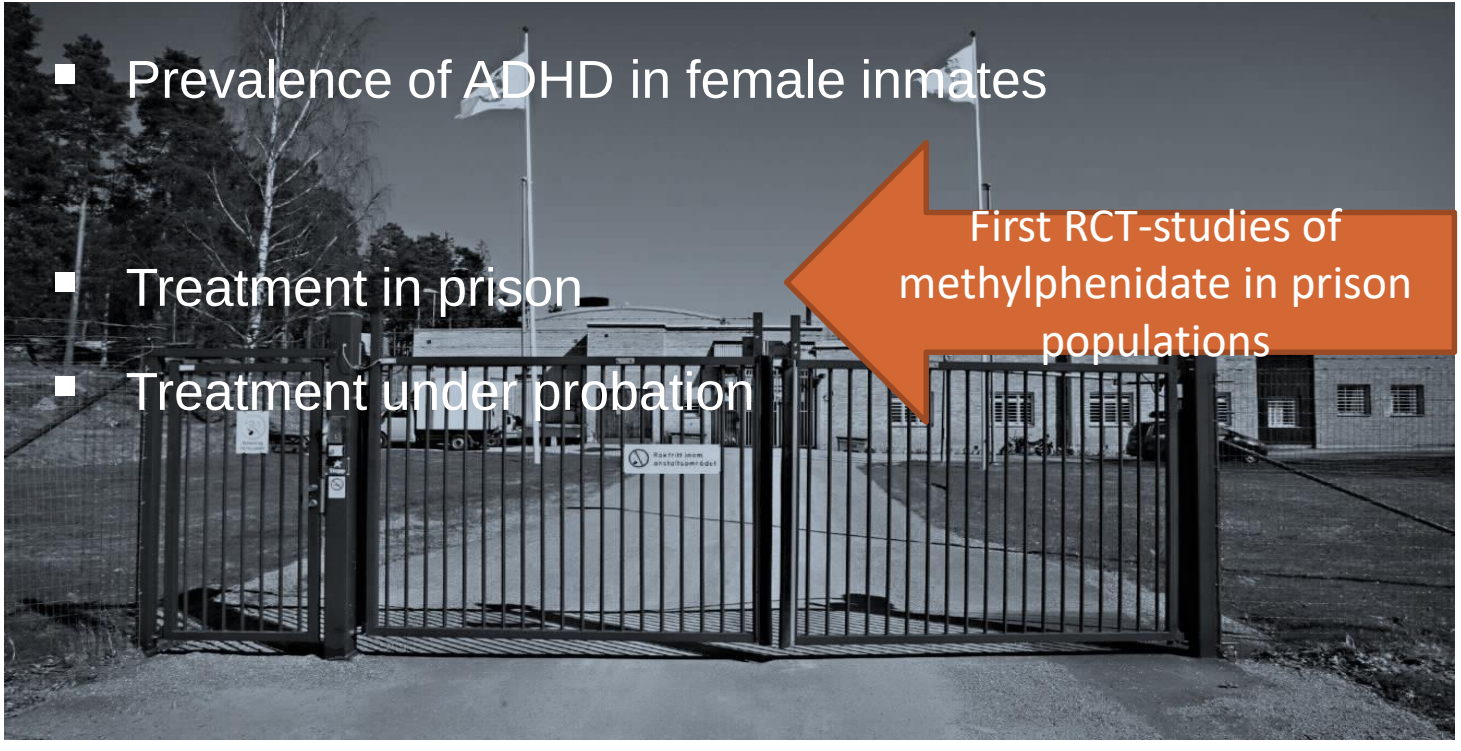
Article	Authors	Publication year	Population	Design	Main outcome
Childhood Neurodevelopmental Disorders and Violent Criminality: A Sibling Control Study.	Lundström,S Forsman,M Larsson,H Kerekes,N Serlachius,E Långström,N Lichtenstein, P	2013	3,391 children, born 1984-1994, with neurodevelopmental disorders	Longitudinal	ADHD and TDs are risk factors for subsequent violent criminality, while ASDs and OCD are not associated with violent criminality.
Tidigt debuterande beteendestörning: förekomst och betydelse bland vålds- och sexualbrottsdömda	Billstedt E, Hofvander, B	2013	270 18-25 years offenders of violent crime		43% ADHD 10% AST
Medication for attention deficit-hyperactivity disorder and criminality	Lichtenstein,P Halldner,L Zetterqvist, J Sjölander,A Serlachius,E Fazel,S Långström, N Larsson H	2012	25,656 patients with a diagnosis of ADHD		As compared with non medication periods, among patients receiving ADHD medication, there was a significant reduction of 32% in the criminality rate for men (adjusted hazard ratio, 0.68; 95% confidence interval [CI], 0.63 to 0.73) and 41% for women (hazard ratio, 0.59; 95% CI, 0.50 to 0.70).

Studies conducted within the Swedish PPS



- Prevalence of ADHD in female inmates
- Treatment in prison
- Treatment under probation

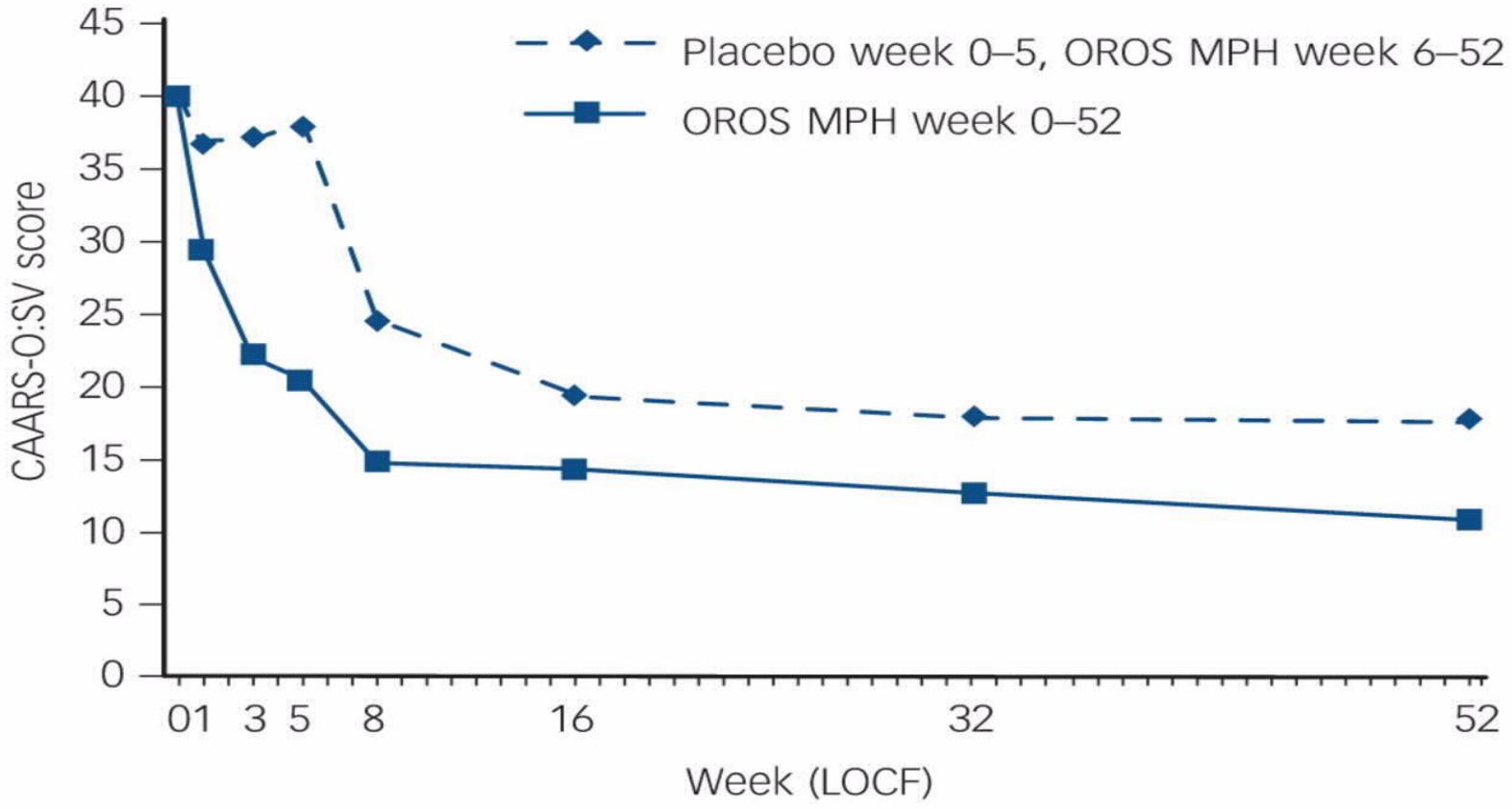
Studies conducted within the Swedish PPS



Methylphenidate treatment of adult male prison inmates with attention-deficit hyperactivity disorder: randomized double-blind placebo-controlled trial with open-label extension (Ginsberg & Lindefors, 2012)

- 30 male inmates
- Double-blind placebo-controlled for 5 weeks
- Treatment significantly improved ADHD (Cohen's d = 2.17), with reduced symptom severity and improved global functioning
- Abstract verbal reasoning, several cognition-related measures and motor activity improved significantly over time

Intention-to-treat population: Conners' Adult ADHD Rating Scale – Observer: Screening Version (CAARS-O:SV) total sum-score as a function of treatment group and time.



Ginsberg Y , and Lindefors N BJP 2012;200:68-73

THE BRITISH JOURNAL OF PSYCHIATRY

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Methylphenidate for ADHD and Drug Relapse in Criminal Offenders with Substance Dependence: A 24-week Randomized Placebo-controlled Trial (Konstenius et al, 2012)

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- 54 male inmates with ADHD and amphetamine dependence
- 24 weeks RCT of methylphenidate + relapse prevention or placebo + relapse prevention
- Relapse in substance abuse was significantly lower in the treatment group, they had better retention to treatment and reduced ADHD-symptoms

Epidemiological study of ADHD, substance use, and comorbid problems in incarcerated women in Sweden

Prevalence of ADHD was 29%

MINI Plus diagnosis	not ADHD	ADHD	p-value
Alcohol abuse	33 %	53 %	**.235**
Alcohol dependence	23 %	44 %	**.189**
Drug dependence* **	58 %	100 %	**.001**
Depression current	20 %	25 %	**.726**
Depression, past	38 %	56 %	**.249**
Bipolar disorder	5 %	12 %	**.570**
ASP* **	30 %	81 %	**.001**
BPD	15 %	25 %	**.448**

(Konstenius et al., 2012)

Substance abuse

- ADHD is a risk factor for developing substance use disorder
- Substance use disorder with comorbid ADHD involves more severe substance misuse and requires more treatment sessions
- ADHD medication does not increase the risk for substance abuse
- Methylphenidate reduces the risk for relapse in clients with ADHD and amphetamine dependence

Molina, B.S.G., and Pelham Jr., W.E. (2003). Childhood Predictors of Adolescent Substance Use in a Longitudinal Study of Children With ADHD. *Journal of Abnormal Psychology 112*(3): 497-507.
Wilens, T.E., Martelon, M.K., Joshi, G., Bateman, C., Fried, R., Petty, C., and Biederman, J. (2011b). Does ADHD Predict Substance Use Disorders? A 10-year Follow-up Study of Young Adults With ADHD. *Journal of the American Academy of Child & Adolescent Psychiatry 50*(6): 543-553.
Zheng, C., Lichtenstein, P., Halldner, L., et al. (2013). Stimulant ADHD medication and risk for substance abuse. Stimulant ADHD medication and risk for substance abuse. *J Child Psychol Psychiatry*..
Konstenius, M., Jayram-Lindström, N., Guterstam, J., Beck, O., Philips, B., & Franck,J. (2014). Methylphenidate for attention deficit hyperactivity disorder and drug relapse in criminal offenders with substance dependence: a 24-week randomized placebo-controlled trial. *Addiction*

Does ADHD medication reduce the risk of re-offending?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Medication for Attention Deficit–Hyperactivity Disorder and Criminality

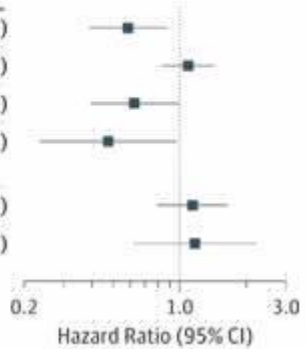
Paul Lichtenstein, Ph.D., Linda Halldner, M.D., Ph.D., Johan Zetterqvist, M.Ed., Arvid Sjölander, Ph.D., Eva Serlachius, M.D., Ph.D., Seena Fazel, M.B., Ch.B., M.D., Niklas Långström, M.D., Ph.D., and Henrik Larsson, M.D., Ph.D.

- Compared with non medication periods, among patients receiving ADHD medication, significant 32% reduction in the criminality rate for men (adjusted hazard ratio, 0.68; 95% CI, 0.63-0.73) and 41% for women (hazard ratio, 0.59; 95% CI, 0.50-0.70)

Association Between Prescription of Major Psychotropic Medications and Violent Reoffending After Prison Release

Zheng Chang, PhD; Paul Lichtenstein, PhD; Niklas Långström, MD; Henrik Larsson, PhD; Seena Fazel, MD,
JAMA 2016

Medication	Medicated Periods			Nonmedicated Periods			Risk Difference in No. of Violent Reoffenses/ 1000 Person-Years (95% CI)	Hazard Ratio (95% CI)
	Individuals, No.	Person-Years	Violent Reoffenses, No.	Individuals, No.	Person-Years	Violent Reoffenses, No.		
Antipsychotics	2085	1596	100	2767	11026	1044	-39.7 (-57.7 to -11.3)	0.58 (0.39 to 0.88)
Antidepressants	5660	3846	224	7421	31135	2038	5.9 (-11.1 to 28.1)	1.09 (0.83 to 1.43)
Psychostimulants	1202	1648	94	1352	4553	513	-42.8 (-67.6 to -2.2)	0.62 (0.40 to 0.98)
Drugs used in addictive disorders	2077	1168	46	3055	15725	1103	-36.4 (-54.0 to -2.1)	0.48 (0.23 to 0.97)
Antiepileptics	2235	1976	152	2736	10750	800	10.4 (-15.6 to 48.3)	1.14 (0.79 to 1.65)
Adrenergic inhalants[a]	2387	1291	38	2878	12992	586	-7.6 (-17.1 to 55.4)	1.17 (0.62 to 2.23)



22 275 released prisoners in Sweden: antipsychotics, psychostimulants, and medications used for addictive disorders were, statistically significant, associated with lower risk of reoffending.

What do we know?

Prevalence

Risk factor

Treatment

- Reduces ADHD symptoms
- Improves function
- Reduces relapse in substance abuse
- Reduces criminality

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What can we do?

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ADHD-projects 2014-2016

- Assignment from the government- young clients and clients convicted for violent crimes
- Increase the capacity for assessment of ADHD
- The goal was to provide more evaluations, with a good clinical standard in a secure and cost-effective routine

ADHD-projects 2014-2016

- Trying two different formats for organizing the assessment
- 1) Systematic screening in prison and a mobile evaluation team. Psychologist and psychiatrist came to the prison were the client was located
- 2) Screening in remand prison and assessment in a specific prison with this capacity
- Third format: Evaluation team based at the prisons with highest prevalence (treatment for substance abuse) and mobile assignments upon request
- Only start an assessment on indication of ADHD (no systematic screening)

ADHD-projects 2014-2016

– The evaluation team:

Coordinator
Regional
local

Psychologist
Medical history
Interviewing
relatives
cognitive test
(WAIS-IV)

Nurse
blood samples ordering
medical records

Psychiatrist
Clinical interviews
(DIVA, MINI 6.0)
Somatic and
psychiatric
differential
diagnosis

ADHD-
ambassador
(staff)
Screening, Qb-
test

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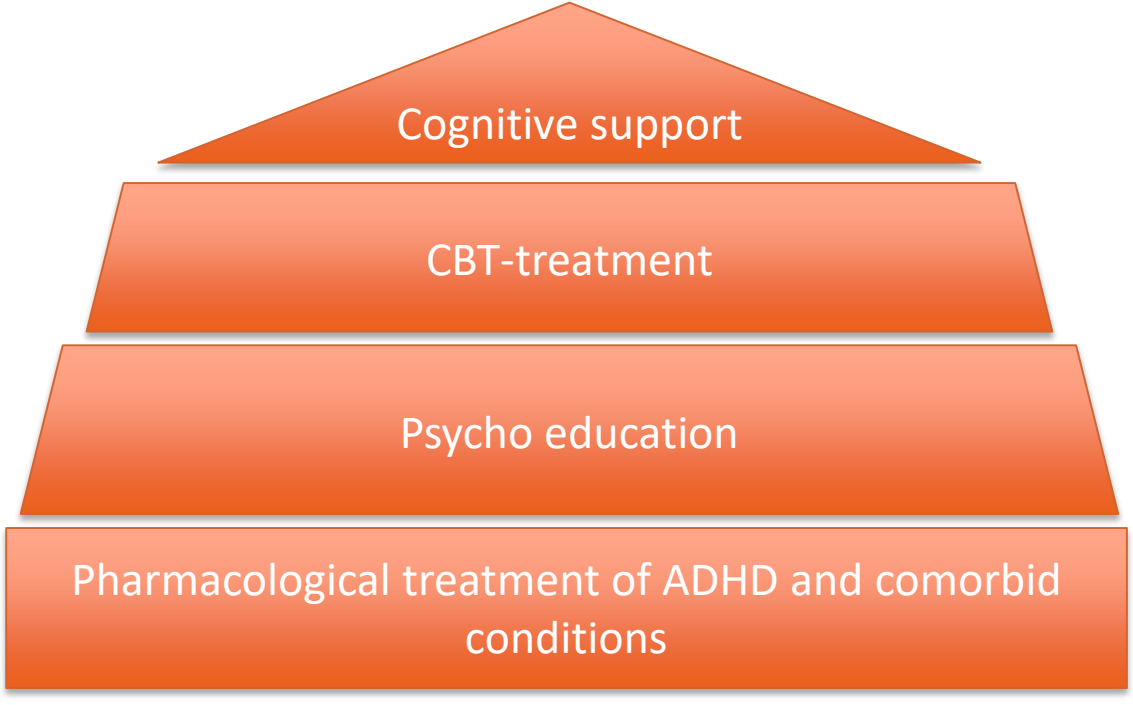
ADHD-projects 2014-2016

- 299 evaluations during the period
- 55% met the criteria for ADHD (the highest rate in prisons with treatment for substance abuse disorders and the lowest rate in prisons with treatment for intimate partner violence and sexual crime)
- The majority met the criteria for several other psychiatric conditions
- The evaluations met good clinical standard

Multimodal treatment

Swedish and international guidelines recommend multimodal treatment for adults with ADHD



SBU, 2013; NICE, 2009

ADHD-projects 2014-2016

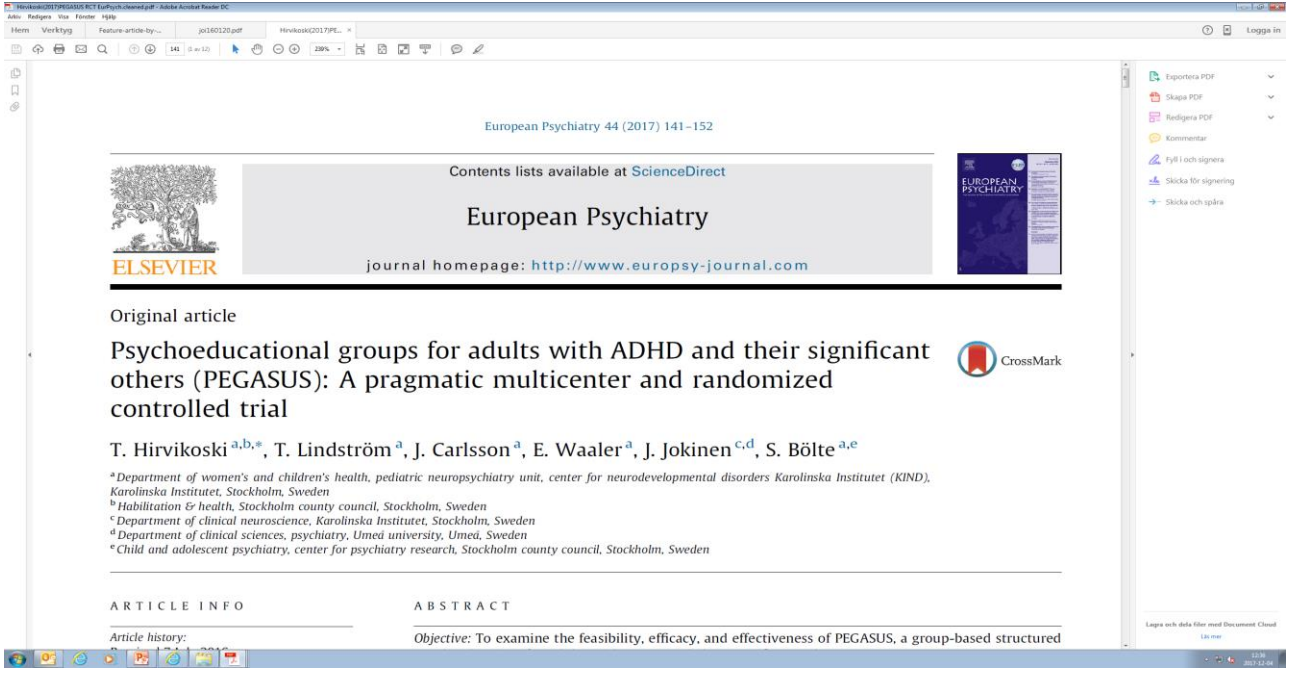
A multi modal approach:

- Psychoeducation for adults with ADHD-Pegasus
- Other form of support (heavy blankets)
- A CBT-intervention for clients with ADHD: R&R2ADHD

Pegasus

- Group based structured psycho education in seven modules: ADHD in adults, pharmacological and psychological treatment, lifestyle, structure and support, acceptance and change, ADHD and work, support from the society
- 85 participants in groups of 3-5
- The clients perceived Pegasus as valuable and their knowledge concerning ADHD increased

Pegasus-previous evidence



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Original article

Psychoeducational groups for adults with ADHD and their significant others (PEGASUS): A pragmatic multicenter and randomized controlled trial

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ARTICLE INFO

Article history:

ABSTRACT

Objective: To examine the feasibility, efficacy, and effectiveness of PEGASUS, a group-based structured

Conclusions: Group-based structured psychoeducation PEGASUS for adults with ADHD and their significant others is a feasible, efficacious, and effective treatment option to increase ADHD knowledge and general life satisfaction in psychiatric outpatient care

R&R2ADHD: Five modules

- ***Cognition:*** Focus on learning strategies & strategies for improving executive function deficits: attention, impulse control & constructive planning
- ***Problem-solving:*** Identify problems, develop consistency thinking, manage conflict & make better choices
- ***Emotional control:*** Dealing with anger & anxiety
- ***Prosocial skills:*** Understand others' feelings and thoughts & to negotiate and resolve conflicts
- ***Critical reasoning:*** Evaluate opportunities & develop behavioral skills

R&R2ADHD: Previous evidence

- Small RCT of 54 ADHD clients with methylphenidate treatment, R&R2ADHD → moderate-large improvement of ADHD symptoms and ***self-reported antisocial behaviour*** at 3-month follow-up (Cohen's d>0.80; Emilsson et al., 2011)
- Personality-disordered offenders with ADHD symptoms compared with waiting-list controls (Young et al., 2013) → R&R2ADHD moderately effective in reducing ADHD symptoms, ***violent attitudes, and anger problems***; key areas for reducing future offending (Andrews & Bonta, 2010

What challenges are we facing?

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Challenges

- Large group of clients- how to make assessment and treatment part of our ordinary activities?
- Pharmacological treatment with controlled substances within our service requires strictly controlled conditions
- How do we continue to design and conduct research studies with high quality within our service?
- Sustainable continua-of-care formats where the clients continue treatment after release from prison

Summary

- ADHD is prevalent among prisoners
- ADHD is a risk factor for criminality
- ADHD in adults often have comorbid conditions
- Pharmacological treatment reduces ADHD symptoms, relapse in substance abuse and criminality

Thank you for your attention!

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