

Health Economic Evaluation of Adult ADHD in Denmark.

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ADHD and Costs

- Symptoms and impairments of ADHD lead to a considerable cost burden for the disorder. (D'Amico et al 2014)
- Meta-analyses have demonstrated that the economic burden of ADHD impacts on different outcomes for Adults and Children. (Doshi et al 2012)
- For adults the greatest cost burden is productivity and income losses ((\$87B_ \$138B),
- but for children, the largest cost categories are health care (\$21B_ \$44B) and education (\$15B_ \$25B)

Existing literature on costs of ADHD

- While the costs of ADHD have been widely estimated and indicate that the economic burden is much greater in adulthood than in childhood (Doshi et al 2012)
- The ADHD cost burden varies considerably between studies (Beecham 2014)
- These variations can be attributed to a number of methodological limitations within the current literature

Existing literature on costs of ADHD

- Few studies explore costs beyond direct medical costs and only a minority include costs to the justice system (Beecham 2014)
- Most are dependent upon reanalysis of existing insurance company databases which usually hold information on health variables only.

Existing literature on costs of ADHD

- Most studies report very poor control or comparison groups,
 - usually involving matched or non-matched typically developing individuals or other heterogeneous clinical groups with potentially overlapping difficulties
 - or national estimates that fail to control for genetic and environmental differences between individuals and groups.

Aims of the present study

- A retrospective evaluation of the private and social costs for individuals who receive an ADHD diagnosis in adulthood (>18)
- To address the many methodological limitations in the economic literature on ADHD.
- Measuring a broad spectrum of outcome: occupational, education, crime, health and more.
- Tapping into the unique Danish Central Person Registers (CPR) databases. Allows estimation of purer and more unbiased values for the true impact of ADHD

Overall design of the study

- The Cost Analysis Study Group for CASA.
- A retrospective evaluation of the private and social costs for individuals who receive an ADHD diagnosis in adulthood (>18)

Methodology and sampling

The registers cover the entire Danish population and contain detailed information about

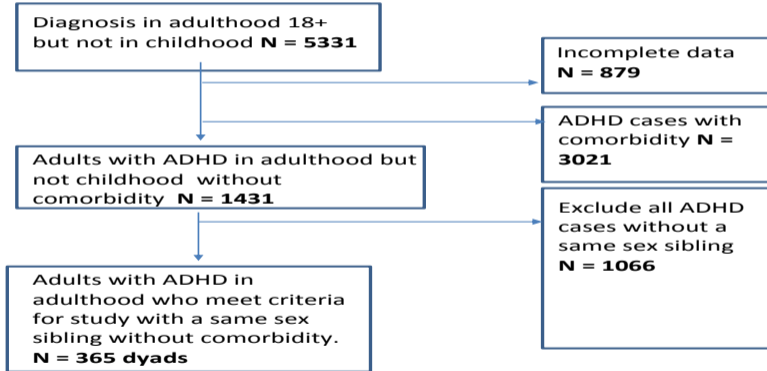
- Labour market status
- Earned income
- Education level
- Usage of health care services in hospital and the primary health care sector
- Family background variables such as education, income and siblings

Individuals with ADHD identified by

- The Danish Psychiatric Central Register.
 - ICD-10 diagnoses: F90.0, F90.1, F90.8, F90.9, og F98.8
 - 5.331 individuals
 - We gathered information from 11 other Danish registers.

Identification of participants

Figure One: Showing identification of participants



ADHD v's Danish Population

Table 1 Comparison of individuals with ADHD and the general adult population

	Individuals diagnosed with	
	ADHD as adults	Non-ADHD adults
Demographic background		
Percentage aged 18-25	38.2	14.2
Percentage aged 26-40	47.7	31.0
Percentage aged 40+	14.1	54.8
Percentage male	64.0	51.1
Percentage immigrants	4.6	15.8
Labour market		
Average annual wage income (€)	18,661	41,458
Total annual income (€)	23,897	43,078
Percentage wage employed	25.0	67.1
Education		
Percentage Only Minimum Level	67.1	38.3
Percentage Obtained Third Level	4.9	19.3

ADHD v's Danish Population

Table 1 Comparison of individuals with ADHD and the general adult population

	Individuals diagnosed with	
	ADHD as adults	Non-ADHD adults
Stable childhood*	57.0	78.0
Percentage having been placed away from home	28.7	3.1
Average Yearly Parental Income (€)**	57,135	63,660
Share of Parents with only Minimum Education	43.0	35.6
Health		
Average number of Comorbid Psychiatric Diagnoses***	4.3	0.3
Percentage receiving ADHD-Medicine	85.2	-
Average Spending on Medicine (€)	1,528	209
Average Number of Primary Care Services	30.7	16.5
Average Number of Secondary In-Patient Days	4.0	2.4
Crime and Traffic		
Percentage with Conviction or Fine****	60.3	19.7
Hereof Road Traffic Act	13.9	11.4
Percentage having been in Traffic Accident*****	8.4	2.2
Age at diagnosis (percentage)		
18 - 20	23.6	-
21 - 25	23.4	-
26 - 30	17.7	-
31 +	35.3	-

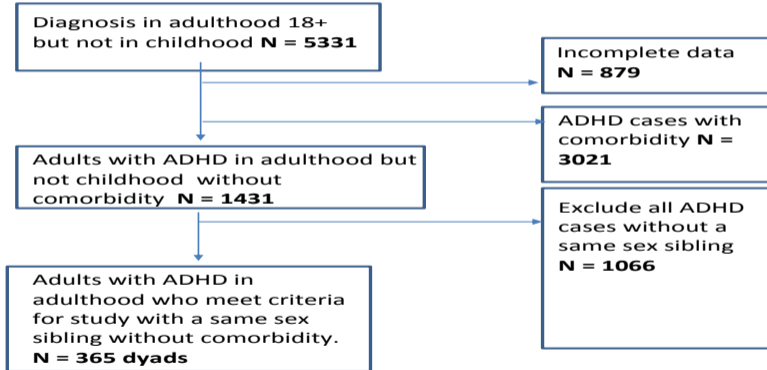
Methodology and sampling

Hence, the group of adults with ADHD is *very different* from the general population in statistical terms.

Therefore we have to control for these differences to measure the effect of ADHD per se.

Identification of participants

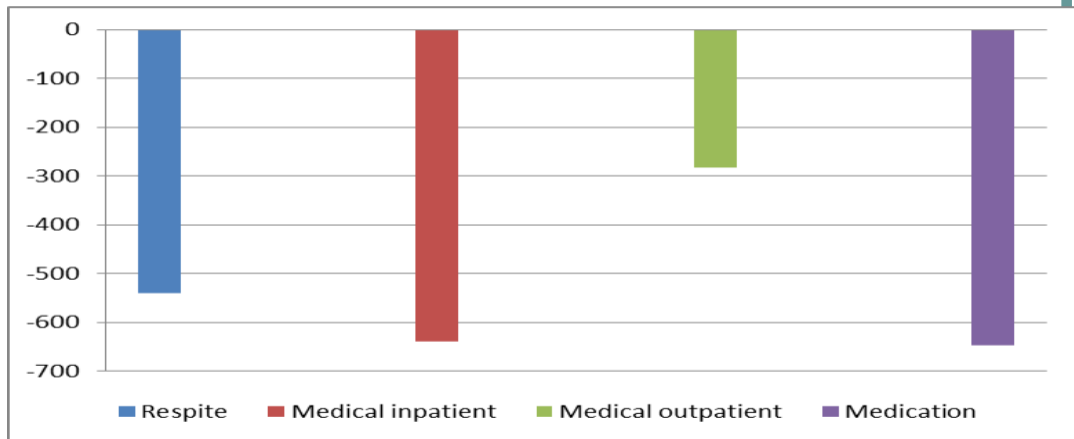
Figure One: Showing identification of participants



Results



Yearly cost differences for public costs between ADHD adults and their siblings in euros



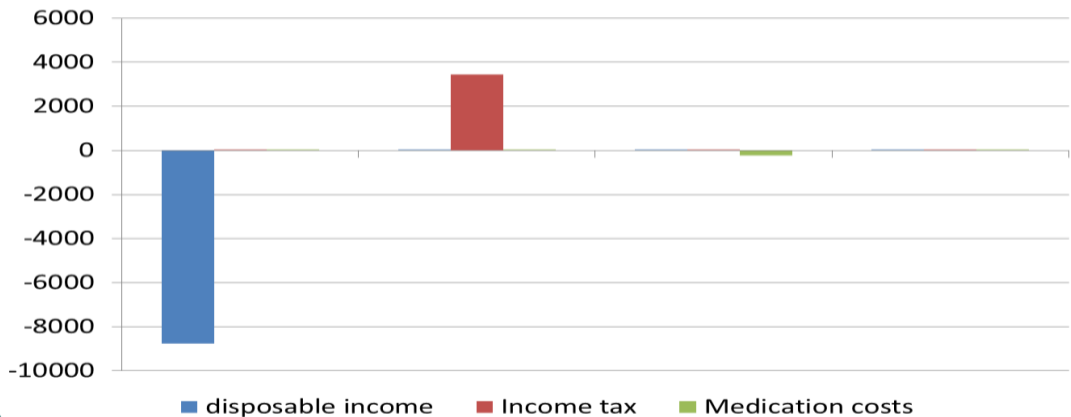
Negative values represent a greater cost to individuals with ADHD

Yearly cost differences for public costs between ADHD adults and their siblings in euros



Negative values represent a greater cost to individuals with ADHD

Yearly cost differences for private costs between ADHD adults and their siblings in euros



Negative values represent a greater cost to individuals with ADHD

The cost of ADHD in Adulthood

Photoshop PSD file download - Resolution 1280x1024 px - www.psdgraphics.com



Conclusions



Invest to save

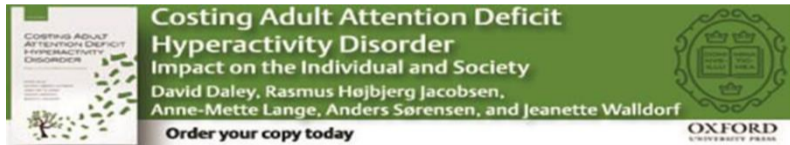
- The economic burden of ADHD is considerable and falls both on the individual and the state
- Earlier investment could help reduce the long term impact of ADHD
- But also reduce the costs of ADHD for both the individual and the state

Conclusions

- More creative about supporting adults with ADHD
 - To keep them in employment as they experience impairment in all aspects (Adamou et al 2013).
 - To keep them out of prison. Dalsgaard et al (2013) reported that 47% of their sample had a criminal conviction into adulthood.
 - Make adults with ADHD more aware of the impact of their ADHD on driving (Groom et al 2015)
 - Better control of core ADHD symptoms may impact on other aspects of health and health care use

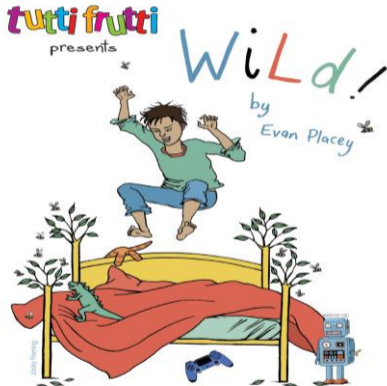
Further details

- Further details about our Danish cost analysis can be found in



- Also a good cure for insomnia!

Wild by Evan Placey



For children aged 8 years old and above

A story of a boy
Running, jumping, no time for sleeping
A boy with big ideas
Shouting, sprinting, can't be stopping
A boy who is lonely
Imagining, dreaming, better than schooling
A boy who loves the open air
Leaving, escaping, no space for listening
A boy they call **WILD!**



Writers Guild award winning writer Evan Placey has teamed up with tutti frutti and CANDAL at Nottingham University to create a fantastic new play with one actor and one live musician that unravels the story of a wayward, fragile and misunderstood boy who lives on his wits and untamed imagination. Funded by the Wellcome Trust, this remarkable new play is informed by intensive research into the condition of ADHD in children.

A brilliant, clever, brave new play celebrating all things 'wild' with fabulous live music and fresh moves. For every misunderstood child, their teachers and families up and down the land.