

Economic impact and service utilisation of children with attention-deficit/hyperactivity disorder (ADHD) - a systematic review and meta-analysis

Le, Ha N.D¹, Dodds, Mitchell¹; Wanni Arachchige Dona, Sithara¹; Coghill, David^{2,3}, Gold, Lisa¹

¹Deakin Health Economics, School of Health and Social Development, Faculty of Health, Deakin University, Victoria, Australia

²Murdoch Children's Research Institute, Royal Children's Hospital, Victoria, Australia

³Departments of Paediatrics and Psychiatry, Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne, Victoria, Australia

Abstract

Background: Attention-deficit/hyperactivity disorder (ADHD) is the most common pediatric neurodevelopmental disorder. While the long-term outcomes associated with ADHD (e.g., low academic performance, increased behavioural problems) have been well-documented, less research has focused on the economic burden and service utilisation of ADHD.

This study aims to systematically synthesise the literature on service utilisation and the economic costs associated with ADHD in children and adolescents.

Methods: The search was conducted via nine databases. Two reviewers independently screened title and abstract, and full-texts. Peer-reviewed primary studies published in English from 2007 to 2022 were included. The NHLBI (National Heart, Lung and Blood Institute) tool was used to assess the quality of included papers. Costs were synthesised into 2022 USD. Meta-analysis was conducted using Meta-XL.

Results

KEY FINDINGS

- 32/7759 studies included.
- Service utilization and costs highly varied among studies.
- Many children with ADHD did not access services.
- Children with ADHD were twice as likely to have unmet health needs than those without the condition.
- Children with ADHD were associated with higher healthcare and societal costs compared to children in the general population.
- Mental health and pharmaceuticals service utilization drove the direct costs, but absenteeism and unemployment were the main indirect costs.

Figure 1: Forest plot- Direct medical cost

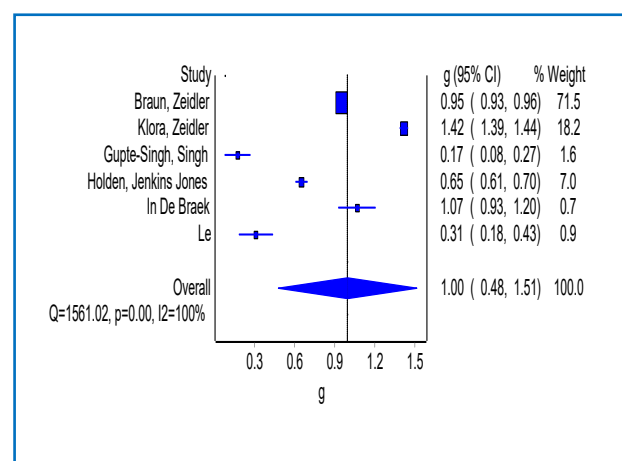


Table 1: Service utilisation and costs associated with ADHD (range in mean across studies)

Cost items (USD cost or % that use item)	Children with ADHD	Children without ADHD
Annual mental health services use	32% to 91%	3.4% to 45%
Annual outpatient care use	23% to 94%	4.3% to 86%
Annual inpatient care services use	23% to 39%	13% to 18%
Pharmaceuticals use	22% to 93%	0% to 14%
Special service use	5% to 37%	1% to 6%
Annual healthcare cost per child (USD)	\$760 to \$12,424	\$377 to \$3,920
Annual societal cost per child (USD)	\$1,279 to \$19,688	\$532 to \$6,813
Productivity losses: unemployment rate	38% mothers and 10% fathers	20% mothers and 5% fathers

Conclusion: ADHD was associated with increased service utilisation (mainly mental health and pharmaceutical services) and costs (both direct and indirect). There was also evidence of unmet health needs or under service utilisation among children with ADHD. Given the substantial lifelong outcomes of ADHD, strategies to improve service utilisation for children with ADHD to mitigate the social and economic impact of ADHD are needed.

Corresponding author:

Dr Ha Le - Senior Research Fellow, Deakin Health Economics, Deakin University

Email: ha.le@deakin.edu.au

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